NASA/TP–2017-219658

Experimental Investigation of Mars Science Laboratory Entry Vehicle Aeroheating in AEDC Hypervelocity Tunnel 9

Brian R. Hollis
Langley Research Center, Hampton, Virginia

Arnold S. Collier
Arnold Engineering Development Complex, White Oak, Maryland

September 2017

NASA STI Program . . . in Profile

Since its founding, NASA has been dedicated to the advancement of aeronautics and space science. The NASA scientific and technical information (STI) program plays a key part in helping NASA maintain this important role.

The NASA STI program operates under the auspices of the Agency Chief Information Officer. It collects, organizes, provides for archiving, and disseminates NASA's STI. The NASA STI program provides access to the NTRS Registered and its public interface, the NASA Technical Reports Server, thus providing one of the largest collections of aeronautical and space science STI in the world. Results are published in both non-NASA channels and by NASA in the NASA STI Report Series, which includes the following report types:

- TECHNICAL PUBLICATION. Reports of completed research or a major significant phase of research that present the results of NASA Programs and include extensive data or theoretical analysis. Includes compilations of significant scientific and technical data and information deemed to be of continuing reference value. NASA counter-part of peer-reviewed formal professional papers but has less stringent limitations on manuscript length and extent of graphic presentations.

- TECHNICAL MEMORANDUM. Scientific and technical findings that are preliminary or of specialized interest, e.g., quick release reports, working papers, and bibliographies that contain minimal annotation. Does not contain extensive analysis.

- CONTRACTOR REPORT. Scientific and technical findings by NASA-sponsored contractors and grantees.

- CONFERENCE PUBLICATION. Collected papers from scientific and technical conferences, symposia, seminars, or other meetings sponsored or co-sponsored by NASA.

- SPECIAL PUBLICATION. Scientific, technical, or historical information from NASA programs, projects, and missions, often concerned with subjects having substantial public interest.

- TECHNICAL TRANSLATION. English-language translations of foreign scientific and technical material pertinent to NASA's mission.

Specialized services also include organizing and publishing research results, distributing specialized research announcements and feeds, providing information desk and personal search support, and enabling data exchange services.

For more information about the NASA STI program, see the following:

- Access the NASA STI program home page at http://www.sti.nasa.gov

- E-mail your question to help@sti.nasa.gov

- Phone the NASA STI Information Desk at 757-864-9658

- Write to:
  NASA STI Information Desk
  Mail Stop 148
  NASA Langley Research Center
  Hampton, VA 23681-2199

NASA/TP–2017-219658

Experimental Investigation of Mars Science Laboratory Entry Vehicle Aeroheating in AEDC Hypervelocity Tunnel 9

Brian R. Hollis
Langley Research Center, Hampton, Virginia

Arnold S. Collier
Arnold Engineering Development Complex, White Oak, Maryland

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia 23681-2199

September 2017

Available from:

NASA STI Program / Mail Stop 148
NASA Langley Research Center
Hampton, VA 23681-2199
Fax: 757-864-6500

Table of Contents

List of Tables

List of Figures

Acknowledgments

The authors wish to thank the entire staff of Arnold Engineering Development Complex Tunnel for their conduct of this test program.

Abstract

An experimental investigation of the aeroheating environment of the Mars Science Laboratory entry vehicle was conducted in the Arnold Engineering Development Complex Hypervelocity Wind Tunnel 9. Testing was performed on a 6-in. (0.1524 m) diameter model in the tunnel's Mach 8 and Mach 10 nozzles at free stream Reynolds numbers from 4.1×10^6*/ft to* 49×10^6*/ft and from* 1.2×10^6*/ft to* 19×10^6*/ft, respectively, using pure nitrogen test gas. These conditions spanned the boundary-layer flow regimes from completely laminar to fully turbulent flow over the entire forebody. A computational fluid dynamics study was conducted in support of the wind tunnel testing. Laminar and turbulent solutions were generated for all wind tunnel test conditions and comparisons of predicted heating distributions were performed with the data. These comparisons showed agreement for most cases to within the estimated ±12% experimental uncertainty margin for fully-laminar or fully-turbulent conditions, while transitional heating data were bounded by laminar and turbulent predictions. These results helped to define uncertainty margins on the use of computational tools for vehicle design.*

Nomenclature

Symbols

c_p	specific heat of model material (J/kg-K)
D	vehicle maximum diameter (m or in.)
H_{w}	wall enthalpy (J/kg)
H_{o}	total enthalpy (J/kg)
H_∞	free stream enthalpy (K/kg)
k	thermal conductivity of model material (W/m-K)
L/D	aerodynamic lift-to-drag ratio
M_e	boundary layer edge Mach number
M_∞	free stream Mach number
p_∞	free stream pressure (Pa)
q	heat transfer rate (W/m^2)
R	radial coordinate (m or in.)
R_{base}	base (maximum) radius (m or in.)
R_{corner}	corner radius (m or in.)
R_{nose}	nose radius (m or in.)
T_w	wall temperature (K)
T_∞	free stream temperature (K)
Re_θ	Reynolds number based on boundary layer momentum thickness
Re_∞	free stream unit Reynolds number (1/m or 1/ft)
$\mathrm{Re}_{\infty,\mathrm{AV}}$	tunnel condition averaged free stream unit Reynolds number (1/m or 1/ft)
$\mathrm{Re}_{\infty,D}$	free stream Reynolds number based on model diameter
St	Stanton number
U_∞	free stream velocity (m/s)
x, y, z	Cartesian coordinates (m or in)
α	angle of attack (°)
θ	boundary-layer momentum thickness (m)
θ_{fore}	forebody cone half-angle (°)
θ_{aft1}	1st aftbody cone half-angle (°)
θ_{aft2}	2nd aftbody cone half-angle (°)
ρ	density of model material (kg/m^3)
ρ_∞	free stream density (kg/m^3)
μ_∞	free stream viscosity (kg/m-s)

Subscripts

e	edge
w	wall
0	stagnation or total
∞	free stream

Abbreviations

AEDC	Arnold Engineering Development Complex
AoA	angle of attack
CFD	computational fluid dynamics

LAURA	Langley Aerothermodynamic Upwind Relaxation Algorithm
MSL	Mars Science Laboratory
OML	outer mold line
TPS	thermal protection system

Introduction

An investigation of the aeroheating environment of the Mars Science Laboratory (MSL) entry vehicle at laminar, transitional, and turbulent conditions was performed in the Arnold Engineering Development Center (AEDC) Hypervelocity Wind Tunnel 9. The goal of this study was to obtain high fidelity heat-transfer data at turbulent conditions to help define uncertainties for the use of Computational Fluid Dynamics (CFD) tools for simulation of blunt-body vehicle environments such as that of the MSL. Testing was performed in a perfect-gas, N2 environment in order to separate the effects of turbulent flow at high Reynolds numbers from those of chemical and vibrational equilibrium obtained in other high-enthalpy tests. These data were analyzed to determine when boundary-layer transition occurred and the extent of turbulent heating augmentation on the heat shield and comparisons were performed against computational heating predictions.

Background

The Mars Science Laboratory (MSL) mission (Refs. 1 - 7) was launched (Figure 1) on November 26, 2011, and entered the Martian atmosphere (Figure 2) on August 6, 2012. The MSL mission was the first precision landing of a large scientific payload, the ~900 kg Curiosity rover (Figure 3), on the surface of Mars. While the basic entry vehicle configuration, a 70° sphere-cone aeroshell, was similar to those of previous Mars missions such as Viking or Pathfinder, the MSL was much heavier than previous designs (see Table 1), producing a higher ballistic coefficient. As a result of its high ballistic coefficient, and also the larger aeroshell size and high angle of attack, it was assumed (Refs. 3 - 4) in the design of the MSL that it would experience turbulent flow through most of its entry trajectory with heating levels higher than any previous Mars mission.

Because there were relatively little data on the turbulent heating environment of large-angle blunt cones prior to the MSL mission, an extensive test program (Refs. 8 - 13) was conducted to obtain data with which to evaluate the accuracy of CFD tools used to predict turbulent environments. In addition to the current study, studies were performed in the NASA Langley Research Center 20-Inch Mach 6 Air Tunnel (heat-shield penetration effects and transition onset in low-enthalpy, perfect-gas environment), the Calspan University of Buffalo (CUBRC) Large-Energy National Shock (LENS) Tunnel (transition onset and turbulent heating in low-to-moderate enthalpy reacting CO_2 environments), and the California Institute of Technology (Caltech) T5 Hypervelocity Shock Tunnel (transition and turbulent heating in moderate to high-enthalpy, reacting CO_2 environments). An additional study of note was performed post-flight in the CUBRC LENS-XX Expansion tube (Refs. 14 - 15) in order to address problems (Ref. 16) observed in the other high-enthalpy data sets.

Experimental Method

Facility Description

The United States Air Force's Arnold Engineering Development Complex Hypervelocity Tunnel 9, located in Silver Spring, Maryland, is a hypersonic, nitrogen-gas, blow-down wind tunnel with interchangeable nozzles that allow for testing at Mach numbers of 7, 8, 10, and 14 over a unit Reynolds number range of $Re_\infty = 0.054 \times 10^6$/ft to 48.4×10^6/ft (0.177×10^6/m to 158.8×10^6/m) depending on Mach number. A photograph of the tunnel is shown in Figure 4 and a schematic drawing of the facility is presented in Figure 5. A full description of the facility can be found in Refs. 17 - 20.

The test section is a 5 ft (1.52 m) diameter, 12 ft (3.66 m) long cell that enables testing of large-scale model configurations. Tunnel 9 incorporates a pitch system that can sweep models from −10° to +50° at pitch rates up to 80°/sec. Combined with the tunnel's 0.2 sec to 15 sec run times, this dynamic pitch capability allows for a large volume of data to be obtained over a range of pitch angles during a single run.

During operation of the facility, the nozzle and test cell are evacuated to a pressure of less than 0.02 psi (138 Pa) and are isolated from the high-pressure side by a pair of metal diaphragms upstream of the throat. Nitrogen in the vertical gas heater is then compressed and heated to a desired pressure and temperature, where the maximum conditions are 27 kpsi (186 MPa) and 3040°F (1944 K). When the desired conditions are reached in the heater, the diaphragms are burst and the high-pressure/high-temperature nitrogen expands through the nozzle into the test cell. During the run, the driver vessels use cold gaseous nitrogen to replace the hot gas in the heater to maintain constant conditions within the test cell.

MSL Wind Tunnel Model Configuration and Instrumentation

A 6-inch diameter (0.1524 m) model of the MSL geometry was fabricated from 15-5 precipitation-hardened (PH) stainless steel with an H1100 heat treatment. A photograph of the model is shown in Figure 6. The model designation, OML-6, was derived from the outer mold line (OML) of the vehicle geometry current at the time of the test. As shown in Figure 7, this configuration consisted of a 70° half-angle sphere-cone forebody heat shield with a biconic aftbody payload cover. Because the flight vehicle configuration was continuously evolving over the vehicle development program, the OML-6 model that was tested differed slightly from the flight configuration. However, the differences were only in the aftbody geometry. Since the primary purpose of this study was to measure forebody turbulent heating levels, these differences were not relevant.

The wind tunnel model was instrumented with 39 Medtherm™ Type-E coaxial (chromel-constantan) thermocouples, which are routinely used in Tunnel 9 for aerothermal studies (Ref. 19.) The gauge layout is also shown in Figure 7 and the gauge locations are listed in Table 2. The forebody was instrumented with 33 gauges and the aftbody was instrumented with 6 gauges. Of the forebody gauges, 19 were evenly distributed along the centerline, while the remaining gauges were located off-centerline in the windward side stagnation region and in the outboard leeward side region of the forebody where the greatest growth of the turbulent heating region was expected to occur.

The gauges were fitted into the model through previously drilled holes and fixed with Loctite™ adhesive. The thermocouple surfaces were sanded carefully to complete the chromel-constantan electrical junctions and to match the surface contours of the model. The shell thickness of the model (and the thermocouple length) was specified at a nominal value of 0.5 in (slightly less at the corners) in order to ensure that heat-conduction into the model did not violate the semi-infinite depth assumption employed in the data reduction process that conduction does not reach the interior face over the duration of the run.

Test Matrix

In this test program, 35 runs were performed in the AEDC Tunnel 9, with 9 runs using the Mach 10 nozzle and 24 runs using the Mach 8 nozzle. The Mach 10 runs spanned a free stream Reynolds number range of Re_∞ = 1.2×10^6/ft to 20.1×10^6/ft and the Mach 8 runs spanned a range of $Re_\infty = 4.1\times10^6$/ft to 49.3×10^6/ft. The test matrix is presented in Table 3 with the runs listed in chronological order. The runs are also shown sorted in order of Mach number and Reynolds number in Table 4. In these tables, the test conditions listed are the averages over the duration of usable flow for each run. For conditions at which multiple runs were made, a run-averaged unit Reynolds number is also listed in Table 4. These average unit Reynolds numbers, $Re_{\infty,AV}$, are used throughout the text to identify specific nominal conditions. Additionally, the actual conditions are both plotted and tabulated for

points throughout the run in Appendix A.

All Mach 10 runs were performed in continuous pitch-sweep data acquisition mode. For lower Reynolds numbers, the sweep range was 0° to 26°, but for higher Reynolds numbers ($Re_{\infty,AV} = 14\times10^6$/ft and above) the sweep range was reduced due to shorter run times. The initial Mach 8 runs (3027 to 3030) also were performed with a continuous pitch sweep over the 0° to 26° range. However, it was found that the duration of high quality test flow was shorter than at Mach 10 and data at the beginning and end of the runs showed signs of transient behavior. A series of runs (3031-3040) was then performed with smaller angle-of-attack ranges (0° to 12°) for diagnostic purposes. Several Mach 8 runs (3042 to 3048) were then performed at fixed angle of attack (0° and 16°) in order to define the period of acceptable flow quality at each Reynolds number test condition. Finally, runs were performed (3050 to 3053) with shorter pitch-sweeps at the higher angles of attack (8° to 22°) of most interest to the MSL program.

Data Reduction Method

The coaxial thermocouples on the MSL model produced voltage data that were converted to temperature-time histories via gauge calibration standards as per Ref. 21. The data were acquired at a frequency of 500 Hz and analog-filtered at 30 Hz to eliminate 60 Hz analog noise. A conduction analysis of the temperature data was then conducted to determine the time-history of the convective heating experienced by the wind tunnel model.

The conduction analysis was performed using both an analytical technique, in which the temperature data were numerically integrated with the assumption of conduction into a semi-infinite slab, and through a numerical finite-volume technique, in which the heat-conduction equation was solved numerically with the thermocouple temperature data as a boundary condition. In both methods, the standard, one-dimensional conduction (in-depth only) assumption was made. Although multidimensional numerical analyses of the heat-conduction data are possible, this was not considered to be practical or necessary for the current study. The analytical and numerical methods have been documented in Ref. 22 and Ref. 23, respectively. In this test program, the finite-volume reduction method was performed using both the AEDC QCALC code (Ref. 23) and the NASA 1DHEAT code (Ref. 24) as a check on the methodology, although no significant differences in the results were noted. The data reduction procedures followed herein are identical to those discussed for testing of the Orion capsule at AEDC in Refs. 25 - 27 and more detail can be found in those references.

Conduction analyses of this type produce heating-time histories in terms of the dimensional heat-transfer rate, q. However, because the free stream conditions in Tunnel 9 can vary slightly over the course of the run, and because the rise in a model's surface temperature can be significant with respect to the stagnation temperature (which has a first-order effect on the convective heating rate), the dimensional heat-transfer distributions are not constant over the duration of a run. Thus, the dimensional heat-transfer rate is not considered to be the best parameter for reporting the data. Instead, heating data are provided in a nondimensional form based on the Stanton number and the square-root of the Reynolds number given by:

$$St \times \left(\mathrm{Re}_{\infty,D}\right)^{(1/2)} = \frac{q}{\rho_\infty U_\infty \Delta H} \times \left(\frac{\rho_\infty U_\infty D}{\mu_\infty}\right)^{(1/2)} \tag{1}$$

where

$$\Delta H = H_\infty + \frac{U_\infty^2}{2} - H_w \tag{2}$$

This nondimensional quantity remains very nearly a constant over the course of a run (assuming a fixed angle of

attack). As the wall temperature rises, both the enthalpy difference and heat-transfer rate terms, ΔH and q, decrease and balance each other, while the ρ_∞ and U_∞ terms account for variations in flow conditions over the run.

The quantity defined by Eq. **(3)** is commonly used as a parameter to correlate laminar heating data at varying Reynolds numbers for constant Mach number and enthalpy. For turbulent conditions, a similar parameter with a 1/5th power dependence on Reynolds number is employed, which is defined by:

$$St \times \left(\mathrm{Re}_{\infty,D}\right)^{(1/5)} = \frac{q}{\rho_\infty U_\infty \Delta H} \times \left(\frac{\rho_\infty U_\infty D}{\mu_\infty}\right)^{(1/5)} \tag{3}$$

The data reduction process provides a complete time-history of the heating both in terms of the dimensional heat-flux and in terms of the dimensionless parameters as defined in Eqs. **(1)** and **(3)**. For static AoA cases, these results were then time-averaged over the high flow quality test period of each run. For runs in which the model was pitched through an AoA range, the results were time-averaged over periods corresponding to ±0.5° increments from each integer value of α (e.g., α = 16° ±0.5°).

Coordinate Systems for One-Dimensional Data Reduction

As discussed in Ref. 26, the one-dimensional, finite-volume data reduction procedure incorporates several coordinate system locations to account for the different geometrical features of a body. For this test, the spherical coordinate system was employed for the gauges on the nose of the heat shield, the cylindrical coordinate system was used for the gauges on the heatshield shoulder, and the right-cone coordinate system was used for the gauges on the conical section of the heat shield and on the aftbody.

These different coordinate systems were employed for mathematical rigor; however, it was found that for the current geometry, there was very little difference (< 1%) between heating rates computed using the one-dimensional Cartesian system and rates computed using other systems (except on the shoulder of the heat-shield) because the coordinate system curvature is small with respect to the local depth. As discussed in Ref. 26, for a similar blunt-body test at AEDC Tunnel 9 (of an Orion capsule) the use of the cylindrical coordinate system on the shoulder produced a significant change in computed heating. However, it was also noted that the large streamwise temperature gradient around the shoulder violated the one-dimensional conduction assumption. It was concluded that because of this error, as well as the sparseness of gauges at the shoulder, that the Orion shoulder gauge data were not suitable for quantitative comparisons with computational results. That same conclusion applies to the shoulder data from this MSL study.

Wind Tunnel Model Material Thermal Properties

The data reduction methods discussed in the previous sections require specification of the thermal properties of the wind tunnel model material (15-5 PH stainless steel) in order to perform the conduction analysis. While thermal property data were obtained from several sources (e.g., as cited in Refs. 23 - 24), the accuracy of these data was hard to assess. Initial comparisons of predicted heating levels with those determined from the data were unsatisfactory. After a thorough examination of many possible error sources, it was decided that the accuracy of the thermal property data originally used to reduce the data were questionable. A detailed discussion of efforts conducted to determine better material thermal property data has been presented in Refs. 25 - 26. As a result of that work, new thermal property curve fits were generated for this study. The data were re-reduced with these properties, which are given in Eqs. **(4)**-**(6)**. As detailed in Ref. 26, the heating rates determined from the data were also multiplied by a correction factor of 0.971 that was based on results from static heat-flux calibration tests.

$$\rho = 7800 \quad \left(\frac{kg}{m^3}\right) \tag{4}$$

$$c_p = 460 \quad \left(\frac{J}{kg-K}\right) \tag{5}$$

$$k = 11.63 + 1.4816\times10^{-2}T \quad \left(\frac{W}{m-K}\right) \tag{6}$$

Experimental Uncertainty

Given the uncertainties in the values of the wind tunnel material thermal properties (as discussed in Refs. 25 - 26), it was not possible to perform a rigorous error analysis. For general heat-transfer testing purposes, AEDC quotes heating uncertainties of ±6% based on their own internal studies; however, those values were generated before the current issues with material thermal properties were discovered, and thus were likely too low. Therefore, the quoted AEDC uncertainty value was doubled to ±12% for the purposes of this study.

Data Presentation

The complete heat-transfer data set is given in Appendices B and C. Appendix B provides a graphical presentation of the data in which the surface gauge locations are shown on the model by symbols and each symbol is color-coded to represent the heating level. Appendix C provides numerical tabulations of all the data from each gauge.

Computational Methods and Results

Flow field computations at the wind tunnel test conditions were performed using the Langley Aerothermodynamic Upwind Relaxation Algorithm (LAURA). The LAURA code (Refs. 28 - 29) is a three-dimensional, finite-volume solver that includes perfect gas, equilibrium, and nonequilibrium chemistry models. The code can be used to solve the inviscid, viscous thin-layer Navier-Stokes, or full Navier-Stokes equations. Time integration to steady-state in LAURA is accomplished through a combination of line-relaxation and point-relaxation schemes. Roe-averaging (Ref. 30) with Harten's entropy fix (Ref. 31) and Yee's Symmetric Total Variation Diminishing limiter (Ref. 32) is used for inviscid fluxes, and a second-order scheme is employed for viscous fluxes.

In this study, a perfect gas model was used with the appropriate gas parameters for nitrogen. The thin-layer equation set was employed, rather than the full Navier-Stokes equations, since only attached flow, forebody computations were performed. Wake computations were not performed, although a limited number of aftbody heat-transfer measurements were obtained during these tests. A structured, finite-volume, multiple-block grid (Figure 8) with a singularity-free nose was employed for the computations. The grid was comprised of 1.25 million points divided into 14 blocks. Grid adaptation was performed to align the grid with the bow shock and to produce nominal wall cell Reynolds numbers on the order of 1.

Computations were performed for all the Mach 8 and Mach 10 runs at 4° angle-of-attack intervals from 0° to 24° at the corresponding free stream as given in Appendix A. Laminar computations were performed for all the Mach 8 and Mach 10 conditions. Turbulent computations were performed for the Mach 8 cases with unit Reynolds numbers of $Re_{\infty,AV}$ =16×10^6/ft and higher, as well as for the Mach 10, $Re_{\infty,AV}$ = 19×10^6/ft condition using the algebraic

Cebeci-Smith turbulence model.

The choice of the Cebeci-Smith model as the baseline for this study resulted from its use in the Orion program and the success of comparisons with the AEDC Tunnel 9 Orion test data (Refs. 26 - 27), although the algebraic Baldwin-Lomax model was eventually specified as the baseline for the MSL program (Ref. 7). However, as shown by sample comparisons for Mach 8 and Mach 10 cases in Figure 9, there was little difference in heating levels predicted by the two methods. Henceforth, all turbulent heating predictions shown are based on the Cebeci-Smith model.

While it is recognized that more complex turbulent models exist, different models can produce very different results (e.g., Ref. 33) and the validation status of any and all turbulence models for hypersonic flows is both debatable and configuration-specific. An algebraic model was employed in this study because such models are computationally fast and stable and, as has been shown previously for similar blunt-body tests in this facility (Refs. 26 - 27), the accuracy of algebraic turbulence model predictions on the forebody was generally as good as that of the laminar predictions, at least for the conditions under consideration.

Flow-field parameters were extracted from the solutions for use in correlating the data. Boundary-layer transition parameters Re_θ and Re_θ/M_e are plotted in Figure 10 - Figure 13, the boundary-layer height parameters δ and δ/θ are plotted in Figure 14 - Figure 17, and the boundary-layer edge Mach number M_e is plotted in Figure 18 - Figure 21. The predicted nondimensional heating correlation parameters, $St\times(\mathrm{Re}_D)^{1/2}$ (for laminar flow) and $St\times(\mathrm{Re}_D)^{1/5}$ (for turbulent flow), are plotted in Figure 22 - Figure 25 and Figure 26 - Figure 29, respectively. These last two sets of figures demonstrate the Reynolds number independence of heating distributions represented in terms of $St\times(Re_D)^{1/2}$ for laminar flow and in terms of $St\times(Re_D)^{1/5}$ for turbulent flow. Comparisons of these computational results with the experimental data will be presented in the next section.

Results and Analysis

Reynolds Number Trends

The effects of Reynolds number on the forebody and aftbody centerline heating distributions are shown in Figure 30 - Figure 36 for the Mach 8 runs and in Figure 37 - Figure 43 for the Mach 10 runs. Each figure includes all the Reynolds number test points for each angle of attack. Data for all forebody gauges (both on- and off-centerline) are presented in the images in Figure 44 - Figure 50 for the Mach 8 runs and in Figure 51 - Figure 57 for the Mach 10 runs. In these figures, the heating data are presented in terms of the nondimensional parameter $St\times(\mathrm{Re}_D)^{1/2}$. Transitional and turbulent flow can be identified by those distributions that diverge from the low-Reynolds number, laminar baseline.

Forebody Data

In the Mach 8 data set, laminar behavior was observed only for the two lowest unit Reynolds number conditions of $\mathrm{Re}_{\infty,AV} = 4\times10^6$/ft and 8×10^6/ft. Boundary-layer transition was detected from the heating data on both windward side ($x/R < 0$) and leeward side ($x/R > 0$) of the forebody for $\mathrm{Re}_{\infty,AV} \geq 16\times10^6$/ft. Increasingly larger regions of turbulent heating were observed at higher Reynolds numbers. At the highest Mach 8 unit Reynolds numbers of $\mathrm{Re}_\infty \sim 30\times10^6$/ft and 47×10^6/ft, the entire leeward side and most of the windward side of the forebody were turbulent.

In the Mach 10 data set, laminar heating was observed for $\mathrm{Re}_{\infty,AV} \leq 9\times10^6$/ft. At $\mathrm{Re}_{\infty,AV} = 14\times10^6$/ft, boundary-layer transition was first detected from the heating data near the leeward side and the transition location moved upstream toward the nose with increasing Reynolds numbers. At the highest unit Reynolds number of $\mathrm{Re}_{\infty,AV} = 19\times10^6$/ft, turbulent heating was noted on portions of the leeward side. The windward side remained laminar for all

conditions.

Aftbody Data

Previous blunt-body wake flow studies (e.g., Refs. 34 - 38), performed during the NATO AGARD (Advisory Group for Aerospace Research and Development) Working Group 18 activity, demonstrated the complex nature of hypersonic, blunt-body wake flow fields through testing in multiple wind tunnels around the world. These features include unsteadiness, separation and impingement of shear/boundary-layers, rarefaction, and turbulence. Because of these phenomena, aftbody heating distributions are complex and highly dependent on Reynolds number and angle of attack. Owing to the sparseness of the model's aftbody instrumentation, it was not possible to characterize these effects beyond a general assessment of the environment. Aftbody heating levels exhibited a dependency on Reynolds number, which indicates that wake flow was likely separated and transitional or turbulent for all test conditions. Aftbody heating was very low and only reached levels of 1% to 10% of the forebody stagnation point, depending on Reynolds number and angle of attack.

Angle-of-Attack Trends

Angle-of-attack trends on the forebody and aftbody centerline heating are shown in Figure 58 - Figure 63 for the Mach 8 data and Figure 64 - Figure 69 for the Mach 10 data. Data for all forebody gauges on- and off-centerline are presented in the images in Figure 70 - Figure 75 for Mach 8 and in Figure 76 - Figure 81 for Mach 10. For laminar conditions on the forebody, the trend was for the leeward side ($x/R > 0$) heating to decrease with angle of attack and for the windward side ($x/R < 0$) heating to increase with angle of attack (e.g., Figure 64 and Figure 65) as long as the flow remained laminar. A distinct reversal of the leeward-side trend was observed when transition occurred after which the downstream transitional/turbulent heating levels increased with angle of attack (e.g., Figure 61 and Figure 62). Aftbody data were too sparse for characterization of angle-of-attack effects.

Turbulent Data Correlation

As shown earlier for the predicted heating levels, turbulent heating distributions can be correlated using the nondimensional parameter $St\times(\mathrm{Re}_D)^{1/5}$. The wind tunnel centerline data are presented in this form in Figure 82 - Figure 83 for Mach 8 conditions and in Figure 84 - Figure 85 for Mach 10 conditions. In these plots, the lower Reynolds number data, which were characterized as laminar based on the earlier $St\times(\mathrm{Re}_D)^{1/2}$ plots, were excluded for clarity. For the Mach 8 higher Reynolds number conditions, the data were well-correlated using $St\times(\mathrm{Re}_D)^{1/5}$ except for small regions around the nose-tip, which indicated that flow was fully-turbulent over the rest of the forebody at these conditions. The $St\times(\mathrm{Re}_D)^{1/5}$ correlation was less appropriate for the Mach 10 data set, as was expected owing to the fact that most of the data appear to be in the transitional, rather than the fully-turbulent, regime.

Comparison of Data and Predictions

Comparisons between the data and the LAURA laminar predictions and, when appropriate, fully-turbulent, predictions are presented in Figure 86 - Figure 97 for Mach 8 and Figure 98 - Figure 109 for Mach 10. Error bars on the data points represent the ±12% uncertainty estimate discussed previously. Transition to turbulence in the data can be noted in both Mach 8 and Mach 10 comparisons where the data deviate significantly from the laminar predictions. At Mach 8, laminar flow occurred only at the $\mathrm{Re}_{\infty,AV} = 4\times10^6$/ft and $\mathrm{Re}_{\infty,AV} = 8\times10^6$/ft conditions. For these cases, laminar predictions fell outside of the experimental uncertainty range. Laminar comparisons were much better for Mach 10, at which laminar flow was experienced over at least parts of the forebody for all conditions. For all Reynolds numbers and angles of attack, agreement between Mach 10 laminar data and predictions was within the experimental uncertainty except for small regions around the stagnation point for some of the higher angle-of-attack cases. Although both data and predictions were examined extensively, no obvious reason for this mismatch at Mach

8 could be found. However, given the good laminar comparisons for the Mach 10 case, as well as those from other studies (e.g., Refs. 8, 9, 26), it was concluded that the issue was likely with the experimental data or data reduction process, not with the computational method.

Turbulent predictions were performed only for those cases (Mach 8, $Re_{\infty,AV} > 8\times10^6$/ft and Mach 10, $Re_{\infty,AV} = 19\times10^6$/ft) in which transitional/turbulent flow was identified. Close agreement was achieved where the experimental distributions were turbulent – i.e., on the leeward side of the forebody (for all cases) and on the windward side for the highest Reynolds number, Mach 8 cases. For cases where laminar-to-turbulent transition regions were present in the data, there were obvious mismatches between the predictions and data because the predictions were performed assuming fully-turbulent flow over the entire vehicle. For those cases where the flow was fully-turbulent over the entire forebody (i.e., for Mach 8, $Re_{\infty,AV} > 21\times10^6$/ft), comparisons with the fully-turbulent predictions were excellent. These turbulent comparisons supported the validation (Ref. 3) of the use of algebraic turbulence models for the prediction of in-flight turbulent heating rates for mission design purposes.

Boundary-Layer Transition and Turbulent Heating Augmentation

As noted earlier in the Background section, data on blunt-body transition and turbulent heating were scarce when the MSL development program began in the early 2000s. Thus, the high-Reynolds number boundary-layer transition onset and turbulent heating augmentation data obtained in this study were of particular interest.

Boundary-layer transition prediction is an extremely complicated phenomenon for which no truly effective, generalized method exists. In general, ad-hoc, empirical onset correlation models are typically applied to a given vehicle geometry. For MSL, and for blunt-bodies in general, an approximation for transition onset is given by a smooth-wall criterion (i.e., no effects of surface roughness) based on a momentum thickness Reynolds number of $Re_\theta > 200$.

This criterion is based on extrapolation of surface roughness correlations to an effective zero-roughness limit (e.g., Refs. 39 - 40) from which momentum thickness Reynolds numbers of 200 to 500 can be estimated depending on the correlation methodology. For application to the MSL TPS design, it was found that even for the highest estimate of $Re_\theta = 500$, this limit would be reached well before the peak heating point on the entry trajectory. In other words, even if the effects of roughness on promoting transition were ignored, transition would still be expected very early in the trajectory. Thus, the design of the TPS was based on the assumption of turbulent flow throughout the entire trajectory (Refs. 3 - 4). While this approach was considered to be conservative, such conservatism was required in the design of a flagship NASA mission.

A goal of this test program was to validate this Re_θ criterion for use on the 70° blunted sphere-cone geometry of the MSL geometry, since the majority of the available transition data was obtained on hemispheres, flat-plates, and sharp cones. Validation of this criterion was achieved following the approach of Ref. 41 to develop a correlation of the ratio of the actual measured heating (from all gauges on the forebody) and predicted laminar heating (where both are expressed in terms of the nondimensional Stanton number *St*), and the local Re_θ value (from laminar predictions). The functional relationship between the heating augmentation parameter, ϕ, and the momentum-thickness Reynolds number Re_θ is illustrated in Figure 110. In this plot, a value of $\phi = 1$ (allowing for experimental and computational uncertainties) represents laminar flow – i.e., the measured heating is equal to the predicted laminar heating. As Re_θ values increase, transition occurs and ϕ values depart from the laminar level, rising asymptotically to a fully-turbulent limit. This turbulent limit can be expressed as a linear function of Re_θ:

$$\phi = A + B \times \mathrm{Re}_\theta \tag{7}$$

The results from this test are presented for the Mach 10 and Mach 8 data sets in Figure 111 - Figure 112. Additionally, data obtained on the 70° sphere-cone geometry in other tests conducted at Mach 6 in the NASA LaRC

20-Inch Mach 6 Air Tunnel (as summarized in Ref. 41) are shown in Figure 113. Finally, all three data sets are shown in Figure 114.

Transition onset (i.e., $\phi > 1$) values varied from $Re_\theta \sim 150$ to 300. This wide range of scatter was attributed to multiple factors, including (but not limited to): local variations in the actual (non smooth-wall) surface roughness; wind tunnel free stream noise (which is dependent, in part, on Reynolds numbers); off-centerline crossflow effects on boundary-layer stability (which are dependent on angle of attack); and wall temperature effects.

In addition to identifying the transition onset values, this analysis also defined the turbulent heating augmentation relative to predicted laminar levels as a function of Re_θ. As shown in Figure 114, it was found that for the MSL geometry, the turbulent augmentation limit could be given by the function:

$$\phi = 1 + \mathrm{Re}_\theta / 158 \tag{8}$$

A similar analysis was conducted on data from aeroheating tests of the Orion capsule performed in the AEDC Tunnel 9 (Refs. 26 - 27), NASA 20-Inch Mach 6 Air and 31-Inch Mach 10 Air Tunnels (Refs. 42 - 44), and CUBRC LENS I (Ref. 45). As shown in Figure 115 for these data, the augmentation limit was given by the function:

$$\phi = 1 + \mathrm{Re}_\theta / 179 \tag{9}$$

The Orion correlation fit of Eq. **(9)** differed slightly from the MSL fit of Eq. **(8)**. Whether the difference was due to the range of test conditions, vehicle geometry, or simply scatter in the data is unclear. Another interesting result of the Orion data analysis was that there was much less scatter in the Re_θ values for transition onset. For the Orion capsule, the values varied from ~175 to 225. The difference between MSL and Orion transition onset values is believed to be due to the smaller amount of streamline curvature on the Orion spherical cap geometry compared to that on the MSL sphere-cone geometry, which leads to more uniform flow over the Orion geometry. Thus, a transition front over the Orion capsule would be somewhat uniform laterally (perpendicular to the centerline), whereas an MSL transition front would be highly-curved.

This analysis reveals that the smooth-wall Re_θ transition criterion does not provide a reliable means of precisely predicting when transition would actually occur. However, it does provide support to the conservative MSL design methodology in which it was concluded that, since the $Re_\theta > 200$ condition occurred well before peak heating, the TPS should be designed with the assumption of fully-turbulent flow throughout the trajectory.

Summary and Conclusions

Laminar, transitional and turbulent aeroheating data on the Mars Science Laboratory entry vehicle were obtained in the Mach 8 and Mach 10 legs of the Arnold Engineering Development Complex Tunnel 9. Numerical predictions were generated for the test conditions and compared with the data in order to help validate the computational fluid dynamics tools to be used in the prediction of flight environments. Flow field information from the computational solutions was also used in correlating transition data from the test.

At Mach 8, laminar flow was produced on the forebody for $Re_{\infty,AV} = 8\times10^6$/ft and lower, transitional flow was produced at $Re_{\infty,AV} = 16\times10^6$/ft, and partially or fully turbulent flow was produced at the higher Reynolds numbers. At Mach 10, laminar flow was produced on the forebody for $Re_{\infty,AV} = 9\times10^6$/ft and lower, transitional flow was produced at $Re_{\infty,AV} = 14\times10^6$/ft, and partially turbulent flow was produced at $Re_{\infty,AV} = 19\times10^6$/ft.

In comparisons of laminar data and predictions, differences greater than the estimated experimental uncertainty of ±12% occurred for the low Reynolds number, laminar Mach 8 data, but for the laminar Mach 10 data, the comparisons showed agreement to within the experimental uncertainty. While the cause for the Mach 8

discrepancies was not resolved, the good agreement shown with the Mach 10 laminar comparisons, as well as for laminar comparisons in other studies, pointed toward an experimental issue at these conditions, not a computational issue. In comparisons between moderate and high Reynolds number, fully-turbulent data and fully-turbulent predictions, agreement to within the experimental uncertainty was observed for both Mach 8 and Mach 10 conditions. For those Mach 8 and Mach 10 cases in which there was a substantial region of transitional flow, differences were larger in the transition region as would be expected since transition was not modeled in the computations. However, downstream of the transition location, predicted and measured heating levels agreed to within the experimental uncertainty.

Transition analyses were performed using a smooth-wall methodology, through which transition onset values based on the momentum thickness Reynolds number, Re_θ, from 150 to 300 were found. In addition, a linear relationship for the ratio of turbulent heating to laminar heating as a function of Re_θ was derived from this analysis.

This test produced a large amount of data that contributed to the MSL program. Two major areas in which these data have been employed are the validation of computational methods and the verification of the TPS turbulent design philosophy.

The comparisons of turbulent heating data and predictions, which agreed to within the experimental uncertainty, helped to validate the use of the algebraic turbulence models for prediction of the MSL aeroshell forebody heating in flight. Additionally, the (small) differences between predictions and data were factored into the uncertainty margins for aeroheating predictions.

The transition data helped to validate the conservative programmatic decision to design the flight vehicle TPS to fully-turbulent levels. Analysis of the transition data showed that the smooth-wall correlation was not a highly-accurate means of determining when transition would occur in flight. However, the approximate smooth-wall $Re_\theta >$ 200 level for transition was supported by this data set and this level was expected in flight *well before* peak heating. Thus, since any rough-wall effects on the actual TPS would only make transition occur even earlier than at the time predicted for a smooth-wall, it was decided that the TPS would be designed to fully-turbulent levels throughout the trajectory.

References

1. Braun, R. D. (ed.), "The Mars Science Laboratory Entry, Descent and Landing System," *Journal of Spacecraft and Rockets*, Vol. 51, No. 4, July-August, 2014.

2. Karlgaard, C. D., Kutty, P., Schoenenberger, M., Munk, M. M., Little, A., Kuhl, C. A., and Shidner, J., "Mars Science Laboratory Entry Atmospheric Data System Trajectory and Atmosphere Reconstruction," *Journal of Spacecraft and Rockets*, Vol. 51, No. 4, July-August 2013, pp. 1029-1047.

3. Edquist, K. T., Hollis, B. R., Johnston, C. O., Bose, D., White, T. R. and Mahzari, M., "Mars Science Laboratory Heat Shield Aerothermodynamics: Design and Reconstruction," *Journal of Spacecraft and Rockets*, Vol. 51, No. 4, July-August 2013, pp. 1106-1124.

4. Wright, M. J., Beck, R. A. S., Edquist, K. T., Driver, D., Sepka, S. A., Slimko, E. M. and Willcockson, W. H., "Sizing and Margins Assessment of Mars Science Laboratory Aeroshell Thermal Protection System," *Journal of Spacecraft and Rockets*, Vol. 51, No. 4, July-August 2013, pp. 1125-1138.

5. Bose, D., White, T., Mahzari, M. and Edquist, K.," Reconstruction of Aerothermal Environment and Heat Shield Response of Mars Science Laboratory," *Journal of Spacecraft and Rockets*, Vol. 51, No. 4, July-August 2013, pp. 1174-1184.

6. Edquist, K. T. Liechty, D. S., Hollis, B. R., Alter, S. J., and Loomis, M. P., "Aeroheating Environments for a Mars Smart Lander," *Journal of Spacecraft and Rockets*, Vol. 43. No. 2, March-April 2006, pp. 330-339.

7. Edquist, K. T. “Aerothermodynamic Environments Definition for the Mars Science Laboratory Entry Capsule,” AIAA Paper 2007-1206, 45th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, Jan. 8-11, 2007.

8. Hollis, B. R., and Liechty, D. S., “Transition Due to Heat-Shield Cavities on a Mars Entry Vehicle,” *Journal of Spacecraft and Rockets*, Vol. 43. No. 2, March-April 2006, pp. 354-366.

9. Liechty, D. S., Hollis, B. R., and Edquist, K. T., “Mars Science Laboratory Experimental Aerothermodynamics with Effects of Cavities and Control Surfaces,” *Journal of Spacecraft and Rockets*, Vol. 43, No. 2, March-April 2006, pp. 340-353.

10. Wright, M. J., Olejniczak, J. Brown, J. L., Hornung, H. G., and Edquist, K. T., “Modeling of Shock Tunnel Aeroheating Data on the Mars Science Laboratory Aeroshell,” *Journal of Thermophysics and Heat Transfer*, Vol. 20, No. 4, October-December 2006, pp. 641-646.

11. Hollis, B. R., Liechty, D. S., Wright, M. J., Holden, M. S., Wadhams, T. P., MacLean, M. and Dyakonov, A., “Transition Onset and Turbulent Aeroheating Measurements on the Mars Science Laboratory Entry Vehicle,” AIAA Paper 2005-1437, January, 2005.

12. MacLean, M., Wadhams, T., Holden, M., and Hollis, B. R., “Investigation of Blunt Bodies with CO_2 Test Gas Including Catalytic Effects,” AIAA Paper 2005-4693, 38^{th} AIAA Thermophysics Conference, Toronto, Ontario, June 6-9, 2005.

13. MacLean, M. and Holden, M., “Numerical Assessment of Data in Catalytic and Transitional Flows for Martian Entry,” AIAA Paper 2006-2946, 9^{th} AIAA/ASME Joint Thermophysics and Heat Transfer Conference, San Francisco, CA, June 5-8, 2006.

14. MacLean, M., Dufrene, A., Carr, Z., Parker, R. and Holden, M., “Measurements and Analysis of Mars Entry, Descent and Landing Aerothermodynamics at Flight-Duplicated Enthalpies in LENS-XX Expansion Tunnel,” AIAA Paper 2015-1897, AIAA SciTech Conference, Kissimmee, FL, January 5-9, 2015.

15. Hollis, B. R., Prabhu, D. K., Maclean, M. and Dufrene, A., “Blunt-Body Aerothermodynamic Database from High-Enthalpy CO_2 Testing in an Expansion Tunnel,” *Journal of Thermophysics and Heat Transfer*, Vol. 31, No. 3, July-September 2017, pp. 712-731.

16. Hollis, B. R. and Prabhu, D. K. “Assessment of Laminar, Convective Aeroheating Prediction Uncertainties for Mars-Entry Vehicles,” *Journal of Spacecraft and Rockets*, Vol. 50, No. 1., January-February 2013, pp. 56-68.

17. Ragsdale, W. C., and Boyd, C. F., “Hypervelocity Wind Tunnel 9 Facility Handbook, Third Edition,” NAVSWC TR 91-616, July 1993.

18. Marren, D., and Lafferty, J., “The AEDC Hypervelocity Wind Tunnel 9,” Advanced Hypersonic Test Facilities, Progress in Aeronautics and Astronautics, Vol. 198, American Institute of Aeronautics and Astronautics, Reston, VA, 2002, pp. 467-477.

19. Coblish, J. J. and Davenport, A. H., “Recent Efforts at AEDC’s Von Karman Facility and Hypervelocity Wind Tunnel 9 to Enhance Facility Compatibility,” AIAA Paper 2002-2787, 22nd AIAA Aerodynamic Measurement Technology and Ground Testing Conference, St. Louis, MO, June 22-24, 2002.

20. Norris, J. D., Lafferty, J. F., Smith, M. S., Collier, A. S., and Hand, T., “Design and Aerodynamic Calibration of the New AEDC Hypervelocity Wind Tunnel No. 9 Mach 8 Nozzle,” AIAA Paper 2005-4278, 41st AIAA/ASME/SAE/ASEE Joint Propulsions Conference and Exhibit, Tuscon, AZ, June 10-13, 2005.

21. Burns, G. W., Scroger, M. G., Strouse, G. F., Croarkin, M. C., and Guthrie, W. F., “Temperature-Electromotive Force Reference Functions and Tables for the Letter-Designated Thermocouple Types Based on ITS-90,” NIST Monograph 175, 1993.

22. Hedlund, E. R., Hill, J. A. F., Ragsdale, W. C., and Voisinet, R. L. P., “Heat Transfer Testing in the NSWC Hypervelocity Wind Tunnel Utilizing Co-Axial Surface Thermocouples,” Naval Surface Weapons Center - NSWC-MP 80-151, March 1980.

23. Boyd, C. F., and Howell, A., “Numerical Investigation of One-Dimensional Heat-Flux Calculations,” Naval Surface Warfare Center NSWCDD/TR-94/114, October 1994.

24. Hollis, B. R., “User’s Manual for the One-Dimensional Hypersonic Aero-Thermodynamic (1DHEAT) Data Reduction Code,” NASA CR-4691, August 1995.

25. Coblish, J. C., “Recent Aerothermal Measurement Developments Using Coaxial Thermocouples at AEDC Hypervelocity Wind Tunnel No. 9,” AIAA Paper 2007-1467, Jan. 2007.

26. Hollis, B. R., Horvath, T. J., Berger, K. T., Lillard, R. P., Kirk, B. S., Coblish, J. J., and Norris, J. D., “Experimental Investigation of Project Orion Crew Exploration Vehicle Aeroheating in AEDC Tunnel 9,” NASA TP-2008-215547, December, 2008.

27. Hollis, B. R., Berger, K. T., Horvath, T. J., Coblish, J. J., Norris, J. D., Lillard, R. P. and Kirk, B. S., “Aeroheating Testing and Predictions for Project Orion Crew Exploration Vehicle,” *Journal of Spacecraft and Rockets*, Vol. 46, No. 4, July-August 2009, pp.766-780.

28. Gnoffo, P. A., “An Upwind-Biased, Point-Implicit Algorithm for Viscous, Compressible Perfect-Gas Flows,” NASA TP-2953, February 1990.

29. Cheatwood, F. M., and Gnoffo, P. A., “User’s Manual for the Langley Aerothermodynamic Upwind Relaxation Algorithm (LAURA),” NASA TM 4674, April 1996.

30. Roe, P. L., “Approximate Riemann Solvers, Parameter Vectors and Difference Schemes,” *Journal of Computational Physics*, Vol. 43, No. 2, 1981, pp. 357-372.

31. Harten, A., “High Resolution Schemes for Hyperbolic Conservation Laws,” *Journal of Computational Physics*, Vol. 49, No. 3, 1983, pp. 357-393.

32. Yee, H. C., “On Symmetric and Upwind TVD Schemes,” NASA TM 88325, 1990.

33. Brown, J. L., “Turbulence Model Validation for Hypersonic Flows,” AIAA Paper 2002-3308, 8th AIAA/ASME Joint Thermophysics and Heat Transfer Conference, St. Louis, MO. June 24-26, 2002.

34. Muylaert, J., Kumar, A. and Dujarric, C. (editors), *Hypersonic Experimental and Computational Capability, Improvement and Validation*”, Chapters 3-4, AGARD Advisory Report 319, Vol. II, December 1998.

35. Horvath, T. J., McGinley, C. B. and Hannemann, K.,” Blunt-Body Near-Wake Flow Field at Mach 6,” AIAA Paper 1996-1935, AIAA 27th Fluid Dynamics Conference, New Orleans, LA, June 17-20, 1996.

36. Horvath, T. and Hannemann, K., “Blunt-Body Near-Wake Flow Field at Mach 10,” AIAA 35th Aerospace Sciences Meeting and Exhibit, Reno NV, January 6-9, 1997.

37. Holden, M., Harvey, J., Body, I., George, I. and Horvath, T., “Experimental and Computational Studies of the Flow Over a Sting Mounted Planetary Probe Configuration,” AIAA Paper 1997-0768, 35th Aerospace Sciences Meeting and Exhibit, Reno NV, January 6-9, 1997.

38. Hollis, B. R. and Perkins, J. N., “Transition Effects on Heating in the Wake of a Blunt Body,” *Journal of Spacecraft and Rockets*, Vol. 36, No. 5, September-October 1999, pp. 668-674

39. Reda, D.C., “Correlation of Nosetip Boundary-Layer Transition Data Measured in Ballistics-Range Experiments,” *AIAA Journal*, Vol. 19, No. 3, March, 1981, pp. 329-339.

40. Batt, R. G. and Legner, H. H., “A Review of Roughness-Induced Nosetip Transition,” *AIAA Journal*, Vol. 21, No. 1, January 1983, pp. 7-22.

41. Hollis, B. R., “Blunt-Body Entry Vehicle Aerothermodynamics: Transition and Turbulent Heating,” *Journal of Spacecraft and Rockets*, Vol. 49, No. 3, May-June 2012, pp. 435-449.

42. Berger, K. T., “Aerothermodynamic Testing of the Crew Exploration Vehicle at Mach 6 and Mach 10,” *Journal of Spacecraft and Rockets*, Vol. 46, No. 4, July-August 2009, pp.758-765.

43. Hollis, B. R., “Experimental Investigation of Project Orion Crew Exploration Vehicle Aeroheating: LaRC 20-Inch Mach 6 Air Tunnel Test 6931,” NASA TM-2009-215718, April 2009.

44. Amar, A. J., Horvath T. J., Hollis, B. R., Berger, K. T., Berry, S. A., and Calvert, N., "Protuberance Boundary Layer Transition for Project Orion Crew Entry Vehicle," AIAA Paper 2008-1227, 46th AIAA Aerospace Sciences Meeting and Exhibit, Reno, NV, January 7-10, 2008.

45. Wadhams, T. P., Cassady, A. M., MacLean, M., and Holden, M. S., "Experimental Studies of the Aerothermal Characteristics of the Project Orion CEV Heat Shield in High Speed Transitional and Turbulent Flows," AIAA Paper 2009-0677, 47th AIAA Aerospace Sciences Meeting, Orlando, FL, January 5-8, 2009.

Table 1. Comparison of Mars Entry Vehicles.

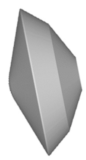
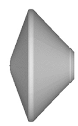
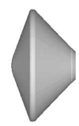
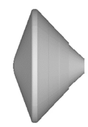
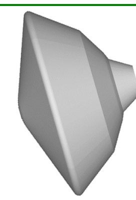
	Viking 1 & 2	Pathfinder	MER A & B	Phoenix	MSL
Configuration					
Diameter, m	3.51	2.65	2.65	2.65	4.5
Entry Mass, kg	981	585	840	573	3380
Landed Mass, kg	603	360	539	364	850 + 775
Relative Entry Vel., km/s	4.5	7.6	5.5	5.5	5.6
Relative Entry Angle, °	–17	–13.8	–11.5	–13	–15.2
Ballistic Coefficient, kg/m^2	64	62	95	62	146
Turbulent at Peak Heating?	No	No	No	No	Yes
Peak Heat Flux, W/cm^2	22	118	48	55	226
Heat shield TPS	SLA-561V	SLA-561V	SLA-561V	SLA-561V	PICA
Hypersonic α, °	–11.2	0	0	0	–15.5
Hypersonic L/D	0.18	0	0	0	0.24

Table 2. Gauge Locations.

Gauge ID	Coordinate System	Gauge Location	x(m)	y(m)	z(m)	x/R	y/R	z/R	Local thick. (m)
A03	Cylindrical	Heat shield	0.05917	0.02537	-0.02101	0.77650	0.33300	-0.27567	0.009525
B02	Cylindrical	Heat shield	0.06759	0.01270	-0.02263	0.88700	0.16667	-0.29700	0.006579
B03	Cylindrical	Heat shield	0.05917	0.01267	-0.01961	0.77650	0.16633	-0.25733	0.008026
B04	Cylindrical	Heat shield	0.05066	0.01267	-0.01661	0.66487	0.16633	-0.21800	0.009525
B13	Cylindrical	Heat shield	-0.02531	0.01273	-0.00787	-0.33220	0.16700	-0.10333	0.009525
B14	Cylindrical	Heat shield	-0.03378	0.01273	-0.01072	-0.44330	0.16700	-0.14067	0.009525
C01	Cylindrical	Heat shield	0.07208	0.00000	-0.02383	0.94587	0.00000	-0.31267	0.009563
C02	Right-cone	Heat shield	0.06760	0.00000	-0.02220	0.88713	0.00000	-0.29133	0.005283
C03	Right-cone	Heat shield	0.05917	0.00000	-0.01913	0.77650	0.00000	-0.25100	0.008560
C04	Right-cone	Heat shield	0.05071	0.00000	-0.01603	0.66547	0.00000	-0.21033	0.009525
C05	Right-cone	Heat shield	0.04222	0.00000	-0.01295	0.55407	0.00000	-0.17000	0.009525
C06	Right-cone	Heat shield	0.03375	0.00000	-0.00988	0.44293	0.00000	-0.12967	0.009525
C07	Right-cone	Heat shield	0.02528	0.00000	-0.00678	0.33180	0.00000	-0.08900	0.009525
C08	Right-cone	Heat shield	0.01685	0.00000	-0.00371	0.22113	0.00000	-0.04867	0.009525
C09	Spherical	Heat shield	0.00838	0.00000	-0.00094	0.11000	0.00000	-0.01233	0.009525
C10	Spherical	Heat shield	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.009525
C11	Spherical	Heat shield	-0.00842	0.00000	-0.00094	-0.11053	0.00000	-0.01233	0.009525
C12	Right-cone	Heat shield	-0.01687	0.00000	-0.00371	-0.22140	0.00000	-0.04867	0.009525
C13	Right-cone	Heat shield	-0.02531	0.00000	-0.00678	-0.33220	0.00000	-0.08900	0.009525
C14	Right-cone	Heat shield	-0.03378	0.00000	-0.00988	-0.44330	0.00000	-0.12967	0.009525
C15	Right-cone	Heat shield	-0.04225	0.00000	-0.01295	-0.55450	0.00000	-0.17000	0.009525
C16	Right-cone	Heat shield	-0.05069	0.00000	-0.01603	-0.66520	0.00000	-0.21033	0.009525
C17	Right-cone	Heat shield	-0.05916	0.00000	-0.01913	-0.77633	0.00000	-0.25100	0.008560
C18	Right-cone	Heat shield	-0.06762	0.00000	-0.02220	-0.88737	0.00000	-0.29133	0.005283
C19	Cylindrical	Heat shield	-0.07210	0.00000	-0.02383	-0.94613	0.00000	-0.31267	0.009563
D02	Cylindrical	Heat shield	0.06759	-0.01267	-0.02263	0.88703	-0.16633	-0.29700	0.006579
D03	Cylindrical	Heat shield	0.05913	-0.01267	-0.01961	0.77603	-0.16633	-0.25733	0.008026
D04	Cylindrical	Heat shield	0.05066	-0.01267	-0.01661	0.66487	-0.16633	-0.21800	0.009525
D13	Cylindrical	Heat shield	-0.02531	-0.01267	-0.00787	-0.33220	-0.16633	-0.10333	0.009525
D14	Cylindrical	Heat shield	-0.03378	-0.01267	-0.01072	-0.44330	-0.16633	-0.14067	0.009525
E03	Cylindrical	Heat shield	0.05913	-0.02537	-0.02101	0.77603	-0.33300	-0.27567	0.006502
F20	Cylindrical	Aftbody	0.06934	0.00000	-0.03752	0.91000	0.00000	-0.49233	0.006223
F21	Cylindrical	Aftbody	0.06248	0.00000	-0.04567	0.82000	0.00000	-0.59933	0.009525
F22	Cylindrical	Aftbody	0.03607	0.00000	-0.06406	0.47333	0.00000	-0.84067	0.009525
F23	Cylindrical	Aftbody	-0.03607	0.00000	-0.06406	-0.47333	0.00000	-0.84067	0.009525
F24	Cylindrical	Aftbody	-0.06248	0.00000	-0.04544	-0.82000	0.00000	-0.59633	0.009525
F25	Cylindrical	Aftbody	-0.06934	0.00000	-0.03752	-0.91000	0.00000	-0.49233	0.009525

Table 3. Chronological Run Matrix (nominal run-averaged conditions).

Run	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
3020	0 - 24	1.846E+06	6.058E+06	9.56	2.857E+02	58.2	1.652E-02	1487.8	7.940E+05
3021	0 – 24	1.183E+06	3.883E+06	9.46	1.678E+02	54.6	1.035E-02	1426.1	7.047E+05
3022	0 – 24	4.599E+06	1.509E+07	9.80	6.326E+02	54.7	3.895E-02	1478.3	7.799E+05
3023	0 – 24	8.529E+06	2.798E+07	10.02	1.071E+03	52.2	6.905E-02	1477.2	7.784E+05
3024	0 – 20	1.440E+07	4.725E+07	10.21	1.700E+03	50.8	1.129E-01	1483.9	7.884E+05
3025	0 – 18	1.921E+07	6.304E+07	10.33	2.106E+03	48.7	1.458E-01	1469.5	7.675E+05
3026	6 – 24	1.854E+07	6.084E+07	10.33	2.103E+03	49.8	1.423E-01	1486.8	7.929E+05
3027	0 – 26	7.994E+06	2.623E+07	7.43	2.323E+03	75.3	1.040E-01	1315.2	5.523E+05
3028	0 – 24	4.090E+06	1.342E+07	7.41	1.171E+03	74.4	5.305E-02	1302.2	5.357E+05
3029	0 – 26	1.581E+07	5.185E+07	7.64	5.039E+03	81.6	2.081E-02	1405.9	6.757E+05
3030	0 – 26	2.150E+07	7.055E+07	7.77	6.265E+03	77.7	2.719E-01	1395.3	6.609E+05
3031	0 – 12	1.632E+07	5.356E+07	7.61	5.291E+03	82.3	2.167E-01	1407.1	6.772E+05
3032	0 – 12	1.642E+07	5.388E+07	7.57	5.342E+03	82.3	2.189E-01	1400.5	6.679E+05
3033	0 - 12	1.592E+07	5.222E+07	7.64	5.112E+03	82.0	2.101E-01	1409.7	6.809E+05
3034	0 – 12	1.608E+07	5.277E+07	7.64	5.073E+03	81.0	2.110E-01	1401.7	6.697E+05
3035	0 – 16	1.576E+07	5.172E+07	7.63	5.121E+03	82.6	2.089E-01	1414.5	6.876E+05
3036	0 – 16	2.006E+07	6.582E+07	10.35	2.187E+03	48.5	1.518E-01	1470.3	7.684E+05
3037	0 – 24	1.255E+06	4.119E+06	9.65	1.486E+02	49.0	1.022E-02	1377.3	6.364E+05
3038	0 – 12	1.618E+07	5.309E+07	7.64	5.237E+03	82.5	2.141E-01	1413.9	6.868E+05
3039	0 – 12	1.579E+07	5.180E+07	7.63	5.086E+03	82.2	2.087E-01	1410.6	6.822E+05
3040	0 – 12	1.702E+07	5.585E+07	7.65	5.070E+03	78.1	2.190E-01	1378.1	6.369E+05
3042	0	8.579E+06	2.815E+07	7.45	2.346E+03	72.3	1.093E-01	1291.5	5.978E+05
3043	0	1.570E+07	5.151E+07	7.64	4.877E+03	80.2	2.049E-01	1393.5	7.433E+05
3044	0	2.105E+07	6.908E+07	7.77	5.942E+03	76.1	2.633E-01	1381.3	7.218E+05
3045	0	4.499E+07	1.476E+08	7.93	1.175E+04	73.2	5.425E-01	1381.4	7.187E+05
3046	16	1.673E+07	5.487E+07	7.65	4.977E+03	78.0	2.151E-01	1376.7	7.161E+05
3047	16	3.057E+07	1.003E+08	7.75	8.134E+03	73.0	3.762E-01	1349.2	6.733E+05
3048	16	4.934E+07	1.619E+08	7.97	1.189E+04	69.6	5.774E-01	1353.2	6.754E+05
3049	8 – 18	1.604E+07	5.262E+07	7.64	5.028E+03	80.7	2.100E-01	1398.8	6.657E+05
3050	12 - 22	1.643E+07	5.390E+07	7.64	5.099E+03	80.2	2.143E-01	1395.3	6.607E+05
3051	8 – 18	2.182E+07	7.157E+07	7.77	6.276E+03	77.1	2.747E-01	1390.3	6.538E+05
3052	12 – 22	2.190E+07	7.185E+07	7.77	6.346E+03	77.4	2.764E-01	1393.3	6.579E+05
3053	10 - 20	3.022E+07	9.915E+07	7.75	8.144E+03	73.6	3.735E-01	1354.3	6.044E+05

Table 4. Sorted Run Matrix (nominal run-averaged conditions).

Run	α (°)	$Re_{\infty,AV}$ (1/ft)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
Mach 10 Runs										
3021	0 – 24	1E+06	1.183E+06	3.883E+06	9.46	1.678E+02	54.6	1.035E-02	1426.1	7.047E+05
3037	0 – 24		1.255E+06	4.119E+06	9.65	1.486E+02	49.0	1.022E-02	1377.3	6.364E+05
3020	0 - 24	2E+06	1.846E+06	6.058E+06	9.56	2.857E+02	58.2	1.652E-02	1487.8	7.940E+05
3022	0 – 24	5E+06	4.599E+06	1.509E+07	9.80	6.326E+02	54.7	3.895E-02	1478.3	7.799E+05
3023	0 – 24	9E+06	8.529E+06	2.798E+07	10.02	1.071E+03	52.2	6.905E-02	1477.2	7.784E+05
3024	0 – 20	14E+06	1.440E+07	4.725E+07	10.21	1.700E+03	50.8	1.129E-01	1483.9	7.884E+05
3026	6 – 24	19E+06	1.854E+07	6.084E+07	10.33	2.103E+03	49.8	1.423E-01	1486.8	7.929E+05
3025	0 – 18		1.921E+07	6.304E+07	10.33	2.106E+03	48.7	1.458E-01	1469.5	7.675E+05
3036	0 – 16		2.006E+07	6.582E+07	10.35	2.187E+03	48.5	1.035E-01	1470.3	7.684E+05
Mach 8 Runs										
3028	0 – 24	4E+06	4.090E+06	1.342E+07	7.41	1.171E+03	74.4	5.305E-02	1302.2	5.357E+05
3027	0 – 26	8E+06	7.994E+06	2.623E+07	7.43	2.323E+03	75.3	1.040E-01	1315.2	5.523E+05
3042	0		8.579E+06	2.815E+07	7.45	2.346E+03	72.3	1.093E-01	1291.5	5.978E+05
3043	0 – 0	16E+06	1.570E+07	5.151E+07	7.64	4.877E+03	80.2	2.049E-01	1393.5	7.433E+05
3035	10 – 0		1.576E+07	5.172E+07	7.63	5.121E+03	82.6	2.089E-01	1414.5	6.876E+05
3039	0 – 12		1.579E+07	5.180E+07	7.63	5.086E+03	82.2	2.087E-01	1410.6	6.822E+05
3029	0 – 26		1.581E+07	5.185E+07	7.64	5.039E+03	81.6	2.081E-01	1405.9	6.757E+05
3033	0 – 12		1.592E+07	5.222E+07	7.64	5.112E+03	82.0	2.101E-01	1409.7	6.809E+05
3049	8 - 18		1.604E+07	5.262E+07	7.64	5.028E+03	80.7	2.100E-01	1398.8	6.657E+05
3034	0 – 12		1.608E+07	5.277E+07	7.64	5.073E+03	81.0	2.110E-01	1401.7	6.697E+05
3038	0 – 12		1.618E+07	5.309E+07	7.64	5.237E+03	82.5	2.141E-01	1413.9	6.868E+05
3031	0 – 12		1.632E+07	5.356E+07	7.61	5.291E+03	82.3	2.167E-01	1407.1	6.772E+05
3032	0 - 12		1.642E+07	5.388E+07	7.57	5.342E+03	82.3	2.189E-01	1400.5	6.679E+05
3050	12 – 22		1.643E+07	5.390E+07	7.64	5.099E+03	80.2	2.143E-01	1395.3	6.607E+05
3046	16		1.673E+07	5.487E+07	7.65	4.977E+03	78.0	2.151E-01	1376.7	7.161E+05
3040	0 – 12		1.702E+07	5.585E+07	7.65	5.070E+03	78.1	2.190E-01	1378.1	6.369E+05
3044	0	22E+06	2.105E+07	6.908E+07	7.77	5.942E+03	76.1	2.633E-01	1381.3	7.218E+05
3030	0 – 26		2.150E+07	7.055E+07	7.77	6.265E+03	77.7	2.719E-01	1395.3	6.609E+05
3051	8 – 18		2.182E+07	7.157E+07	7.77	6.276E+03	77.1	2.747E-01	1390.3	6.538E+05
3052	12 – 22		2.190E+07	7.185E+07	7.77	6.346E+03	77.4	2.764E-01	1393.3	6.579E+05
3053	10 – 20	30E+06	3.022E+07	9.915E+07	7.75	8.144E+03	73.6	3.735E-01	1354.3	6.044E+05
3047	16		3.057E+07	1.003E+08	7.75	8.134E+03	73.0	3.762E-01	1349.2	6.733E+05
3045	0	47E+06	4.499E+07	1.476E+08	7.93	1.175E+04	73.2	5.425E-01	1381.4	7.187E+05
3048	16		4.934E+07	1.619E+08	7.97	1.189E+04	69.6	5.774E-01	1353.2	6.754E+05

Figure 1. MSL launch, November 2011.

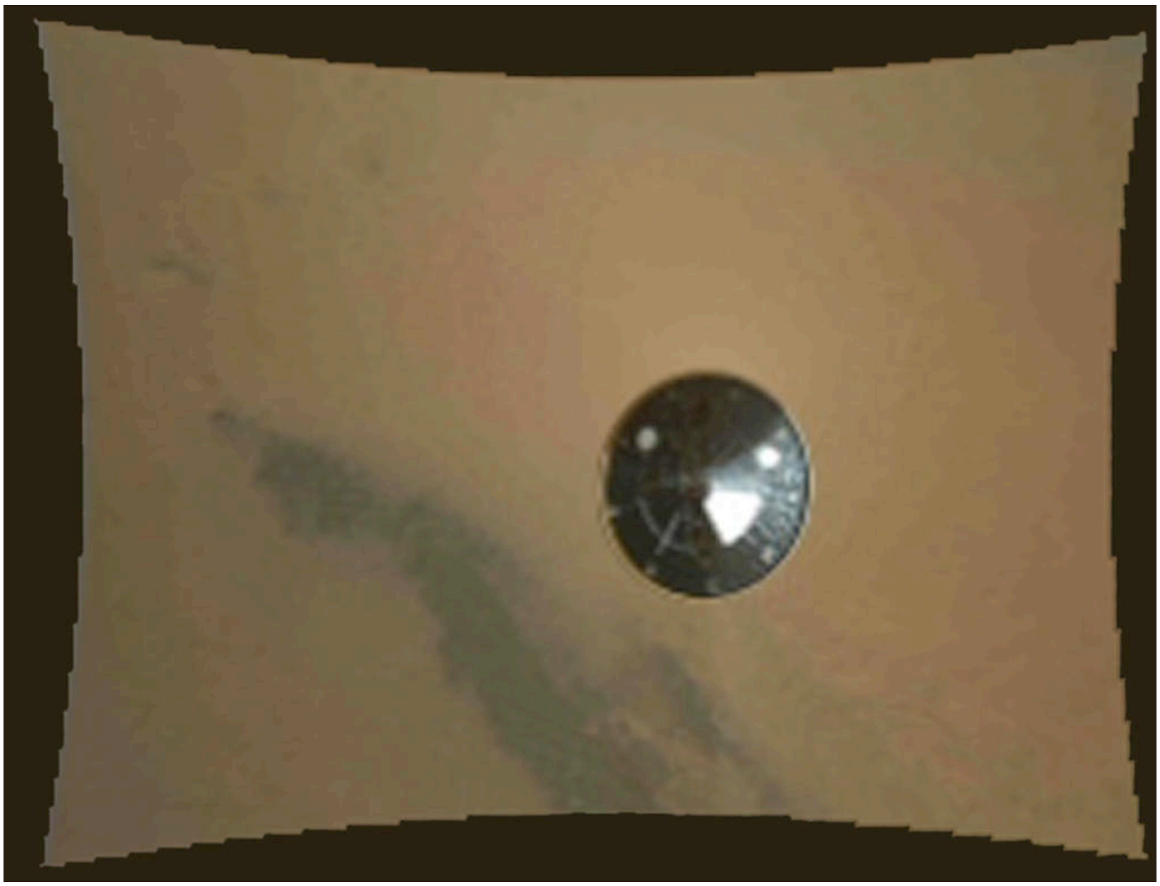


Figure 2. MSL heat shield separating from descent stage.


Figure 3. Curiosity on Mars, viewed from rover arm camera.

Figure 4. AEDC Hypervelocity Tunnel No. 9 (Mach 10 Nozzle).

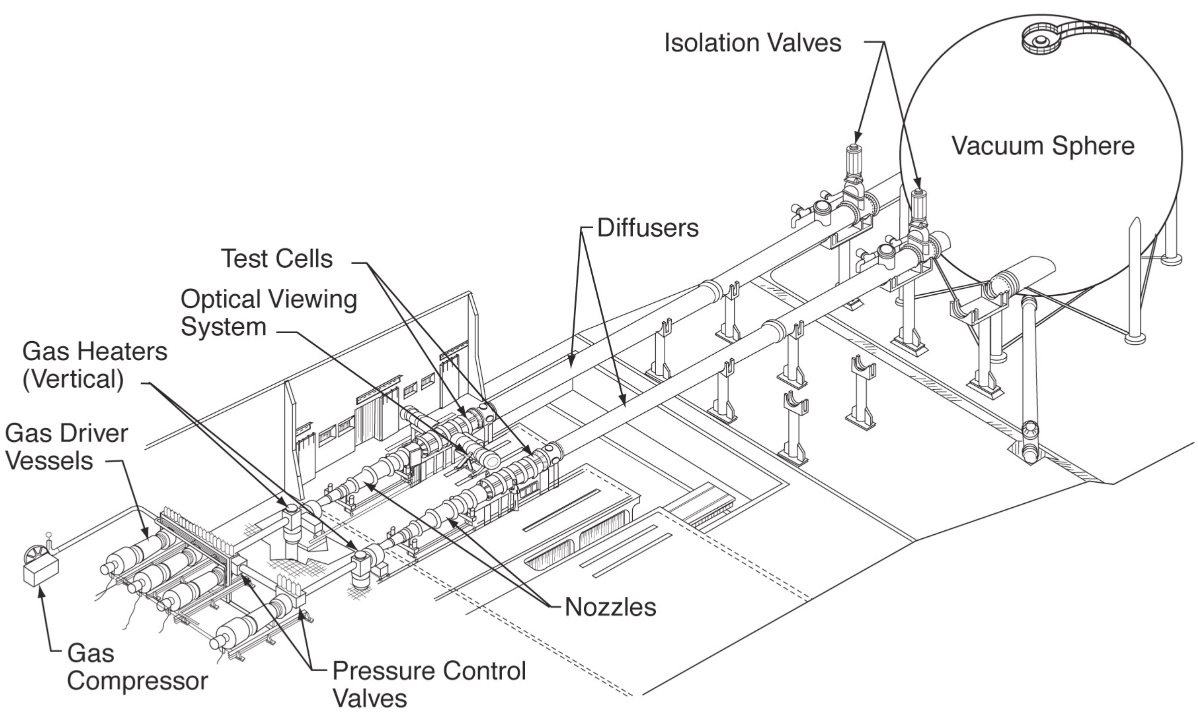


Figure 5. Schematic of AEDC Hypervelocity Wind Tunnel No. 9.

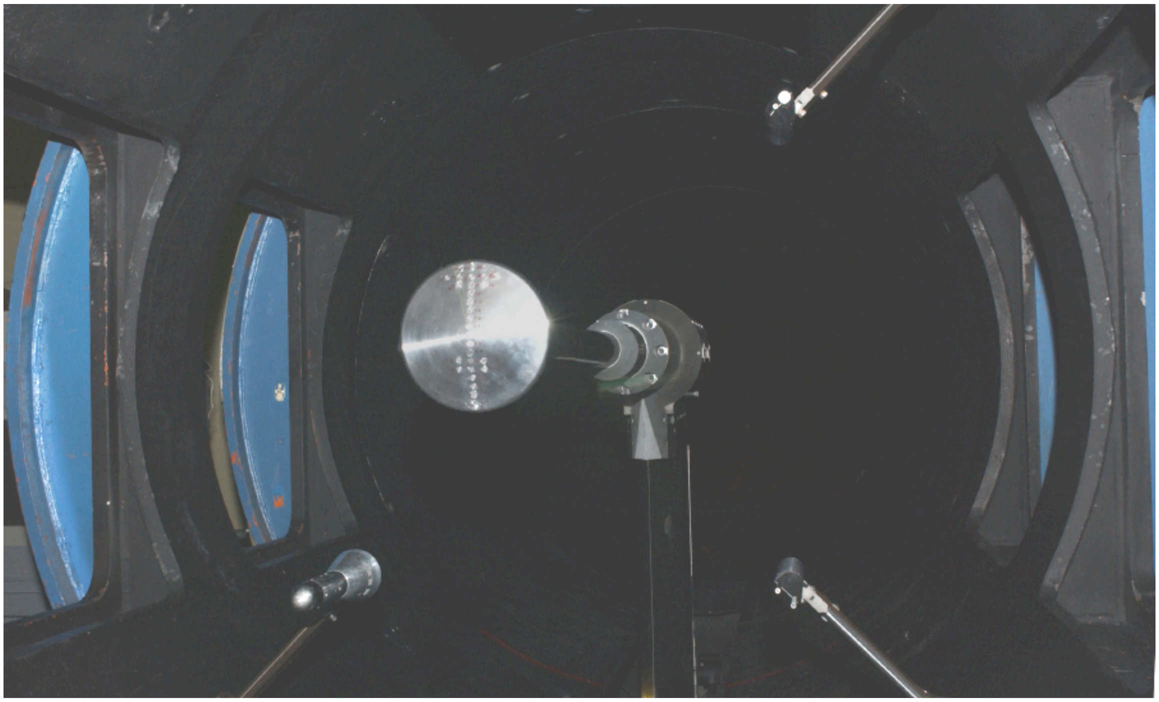


Figure 6. MSL model installed in AEDC Tunnel 9 (diagnostics probes positioned around model).

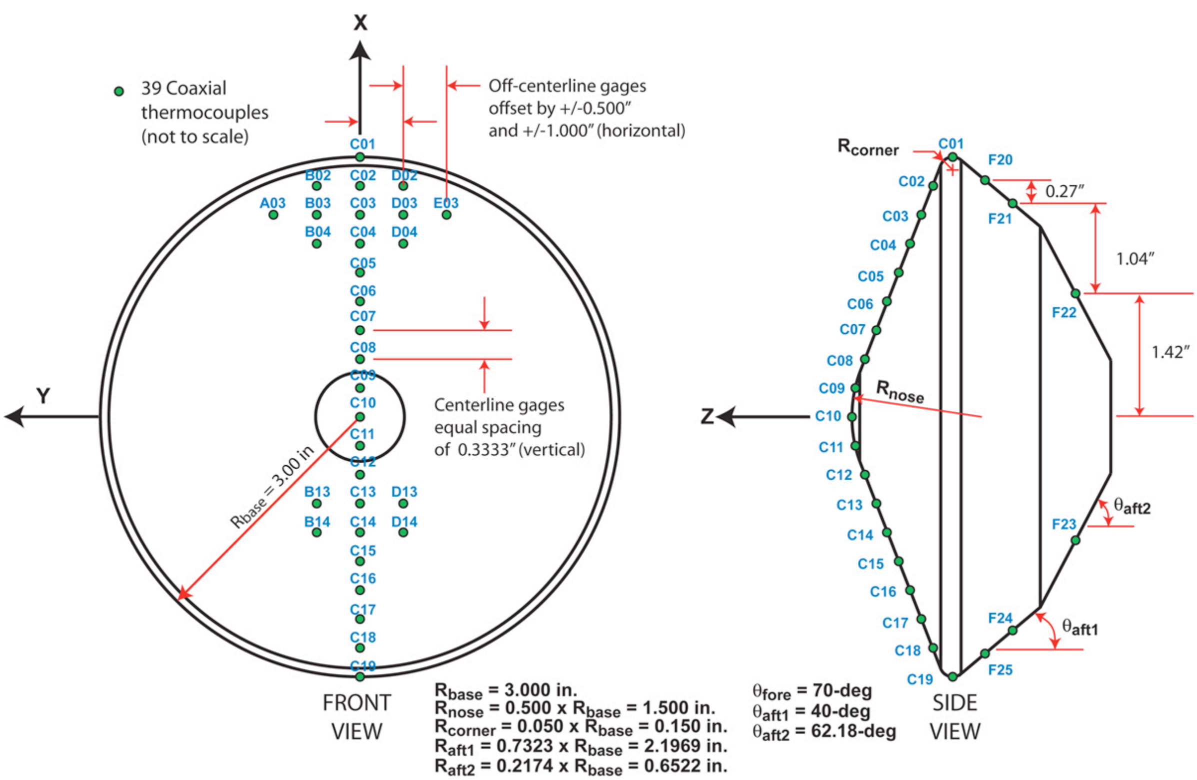


Figure 7. MSL OML-6 geometry and gauge layout.

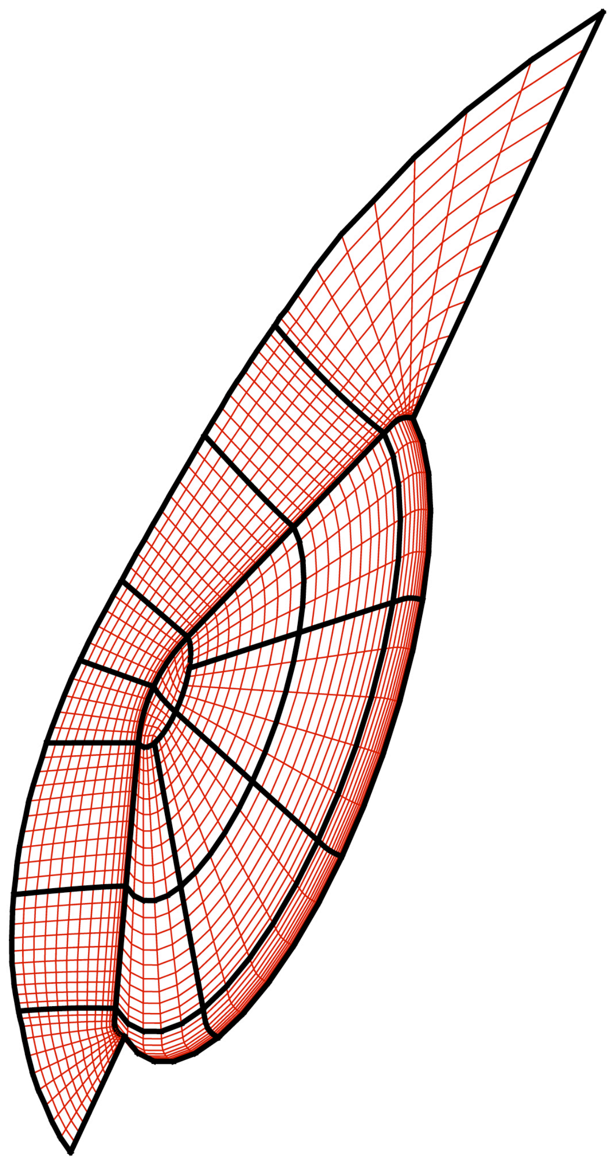
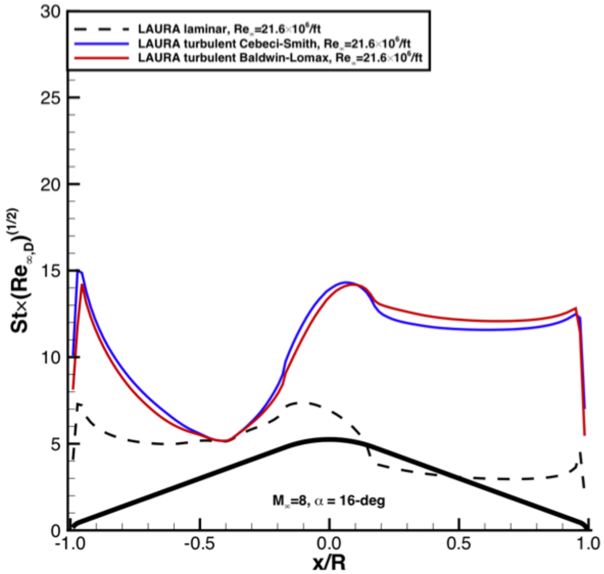
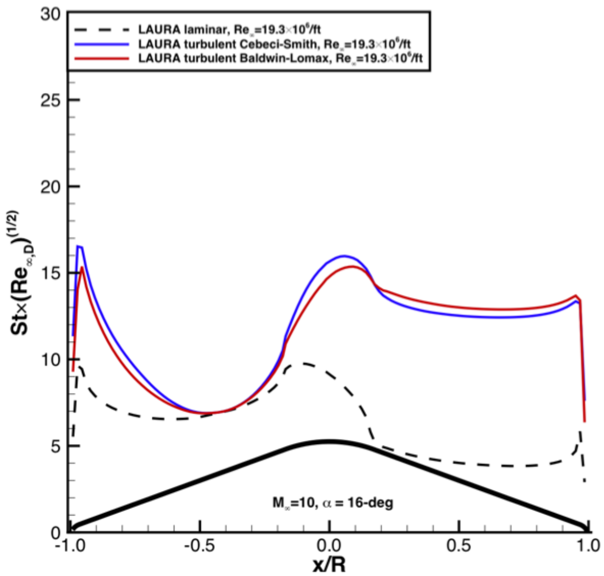


Figure 8. MSL OML-6 computational grid.
(every 4th point shown)

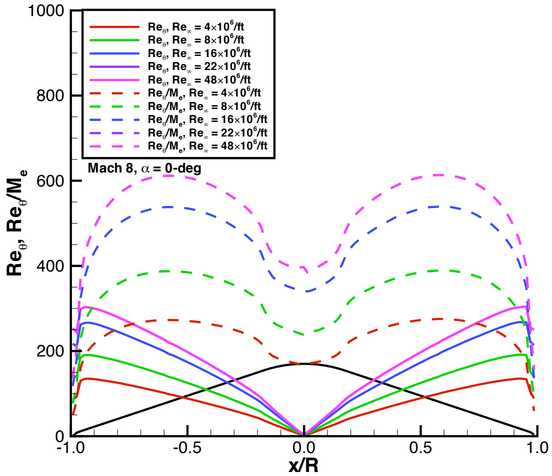


a) Mach 8, $\alpha = 16°$, $Re_\infty = 21.5{\times}10^6$/ft

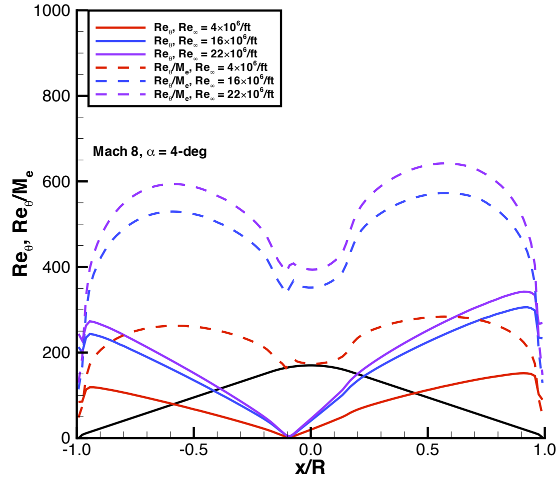


b) Mach 10, $\alpha = 16°$, $Re_\infty = 19.3{\times}10^6$/ft

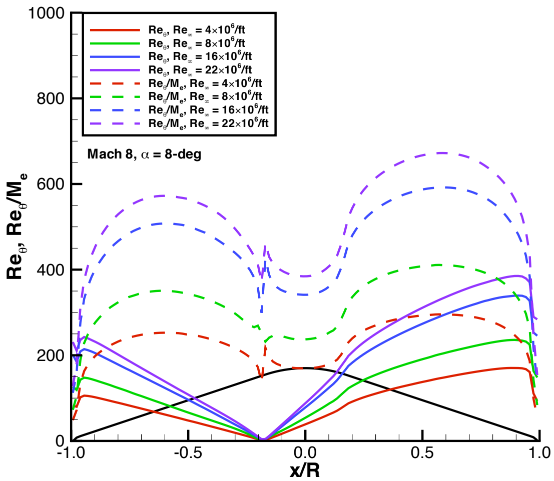
Figure 9. Comparison of turbulent heating predictions using Cebeci-Smith and Baldwin-Lomax models.



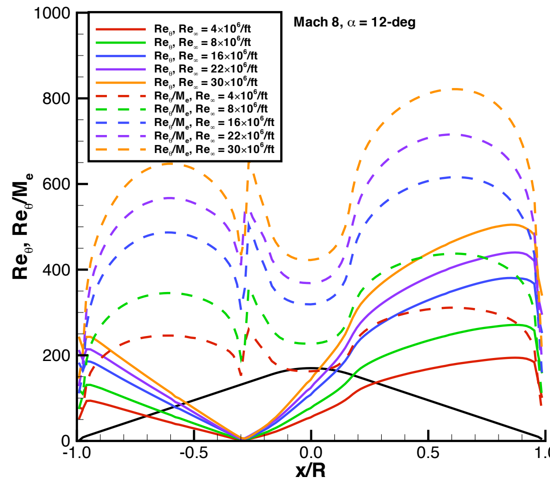
a) Values at $\alpha = 0°$



b) Values at $\alpha = 4°$

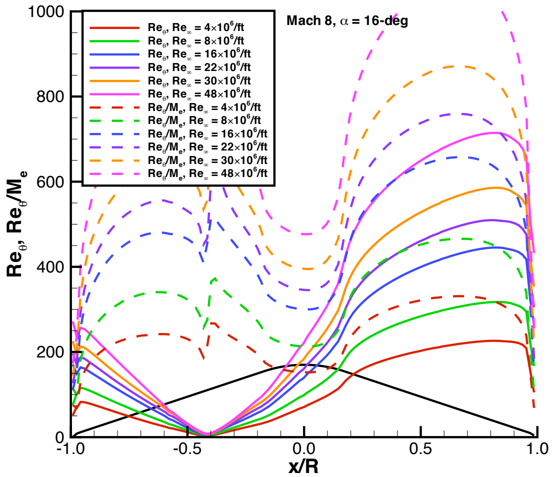


c) Values at $\alpha = 8°$

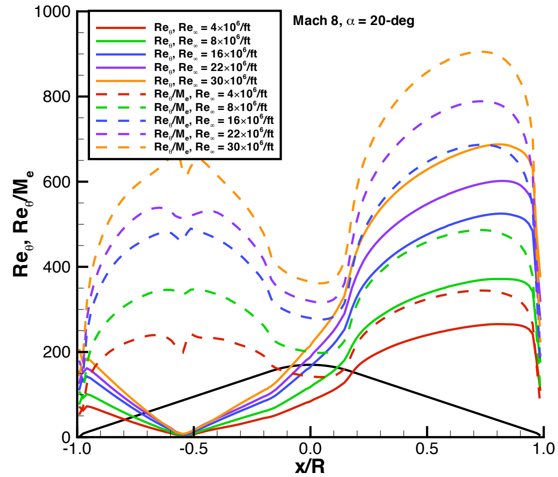


d) Values at $\alpha = 12°$

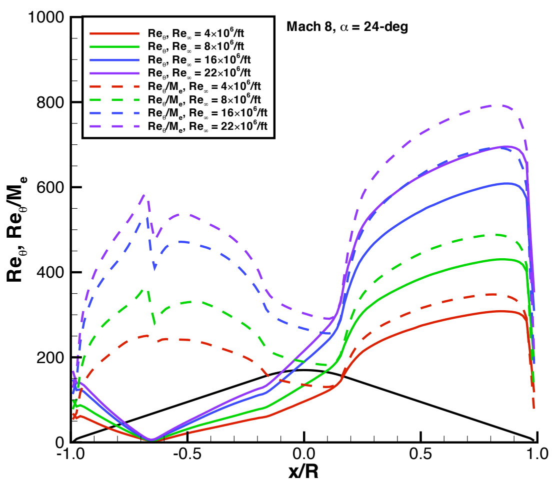
Figure 10. Predicted Mach 8 boundary-layer transition parameters (α = 0° to 12°).



a) Values at $\alpha = 16°$

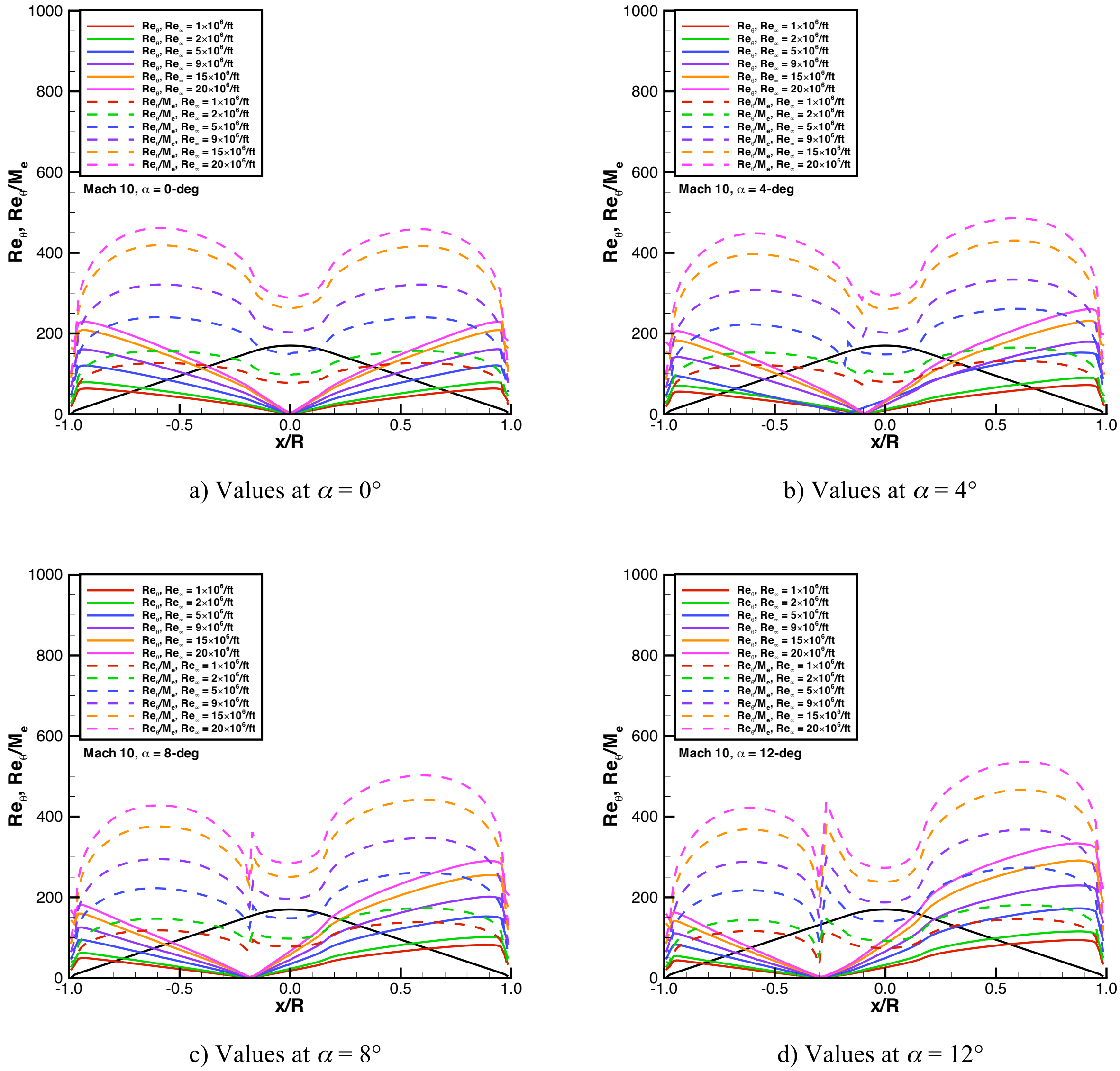


b) Values at $\alpha = 20°$



c) Values at $\alpha = 24°$

Figure 11. Predicted Mach 8 boundary-layer transition parameters (α = 16° to 24°).



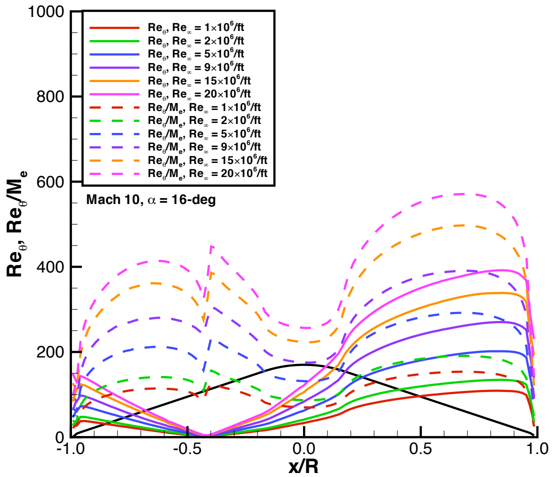
a) Values at $\alpha = 0°$

b) Values at $\alpha = 4°$

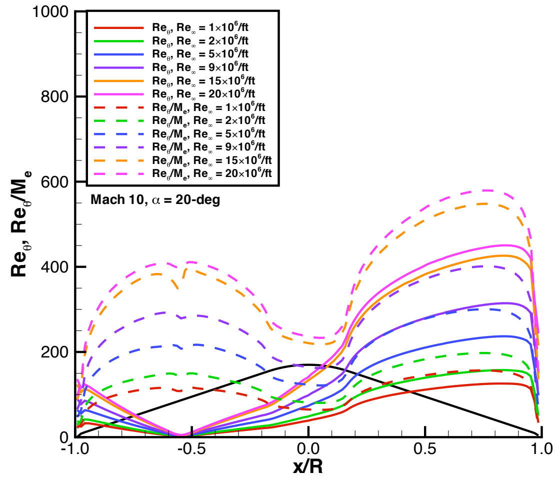
c) Values at $\alpha = 8°$

d) Values at $\alpha = 12°$

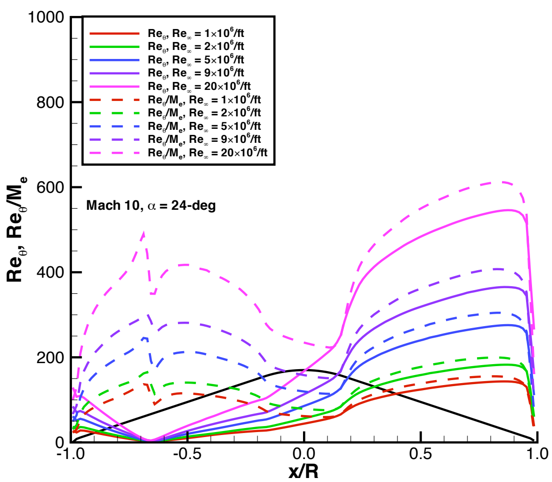
Figure 12. Predicted Mach 10 boundary-layer transition parameters (α = 0° to 12°).



a) Values at $\alpha = 16°$

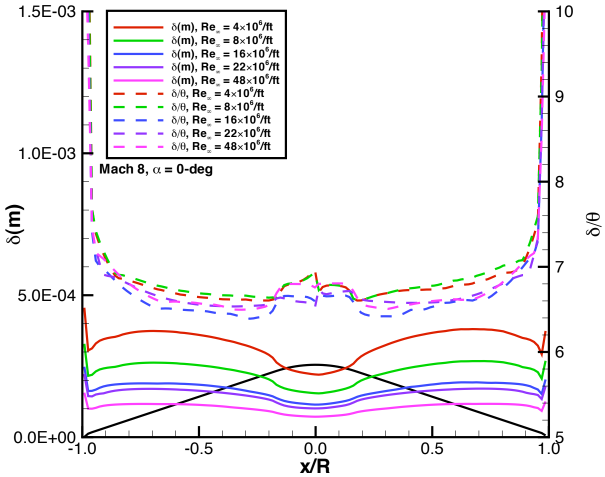


b) Values at $\alpha = 20°$

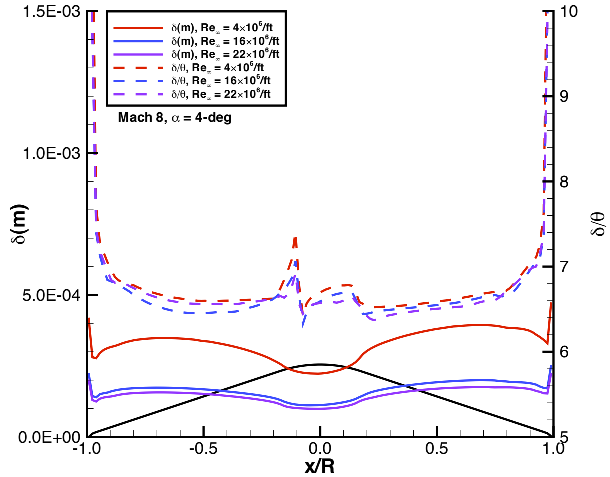


c) Values at $\alpha = 24°$

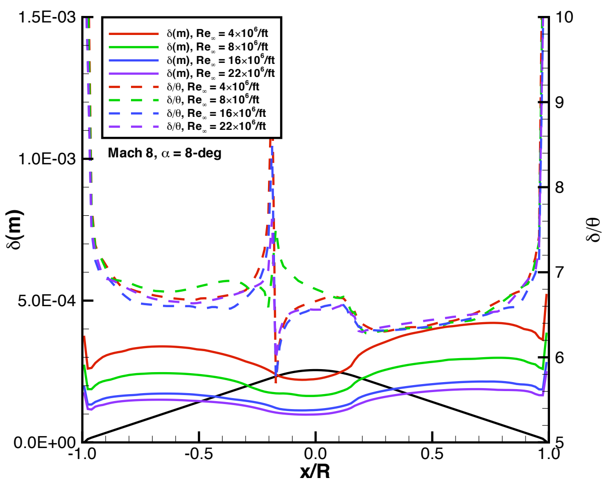
Figure 13. Predicted Mach 10 boundary-layer transition parameters (α = 16° to 24°).



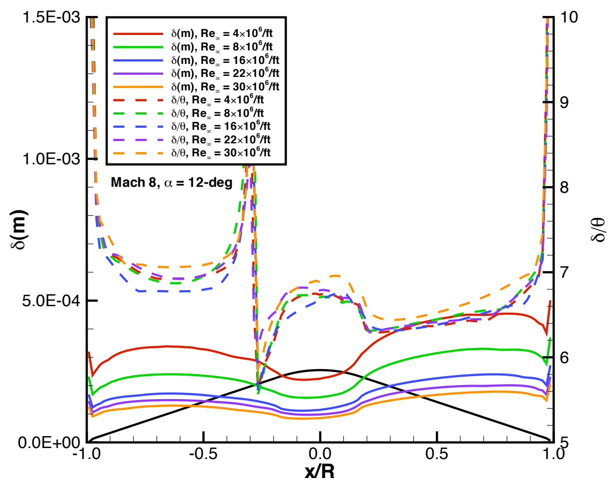
a) Values at $\alpha = 0°$



b) Values at $\alpha = 4°$

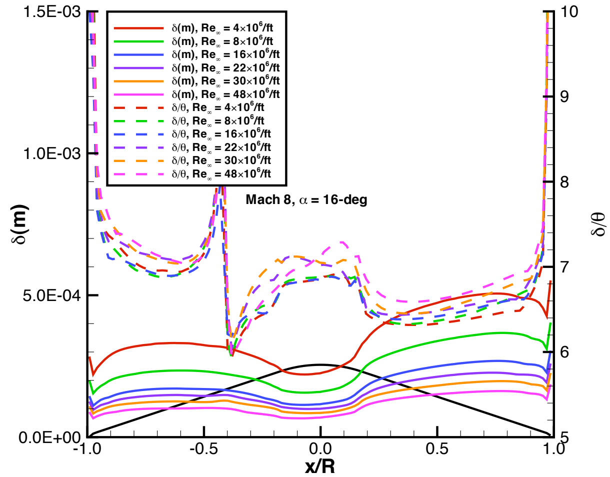


c) Values at $\alpha = 8°$

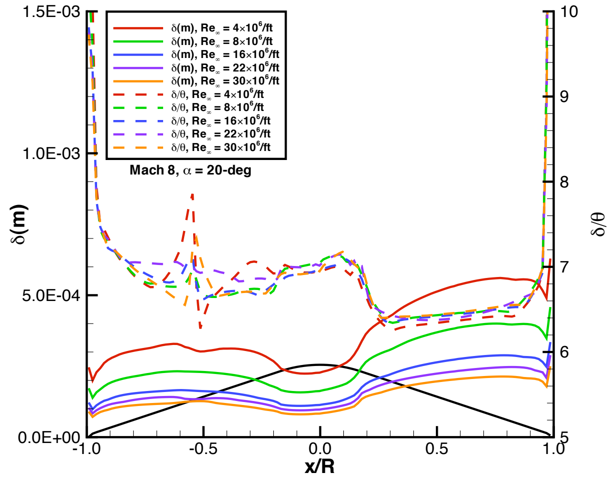


d) Values at $\alpha = 12°$

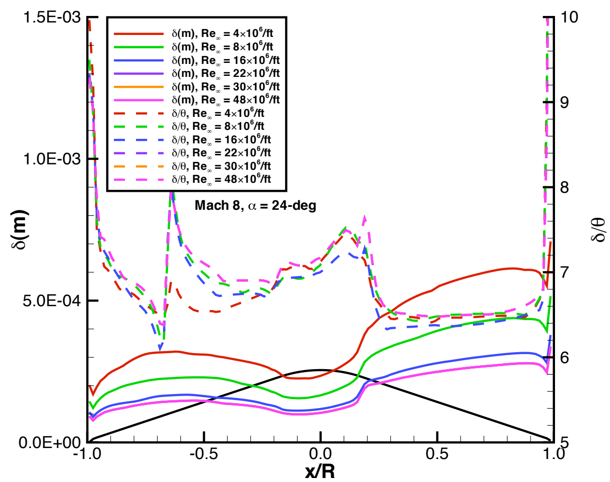
Figure 14. Predicted Mach 8 boundary-layer height parameters ($\alpha = 0°$ to $12°$).



a) Values at $\alpha = 16°$

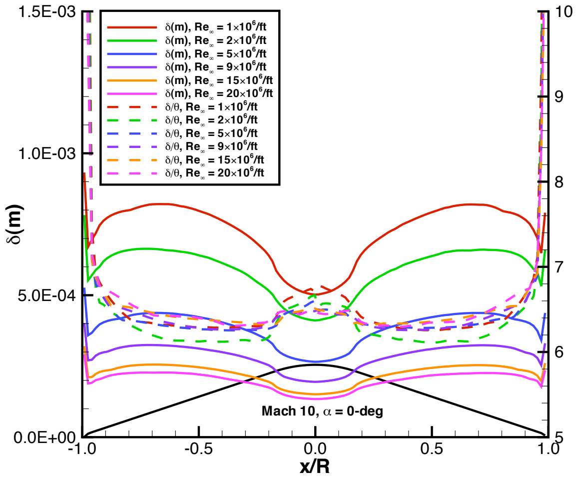


b) Values at $\alpha = 20°$

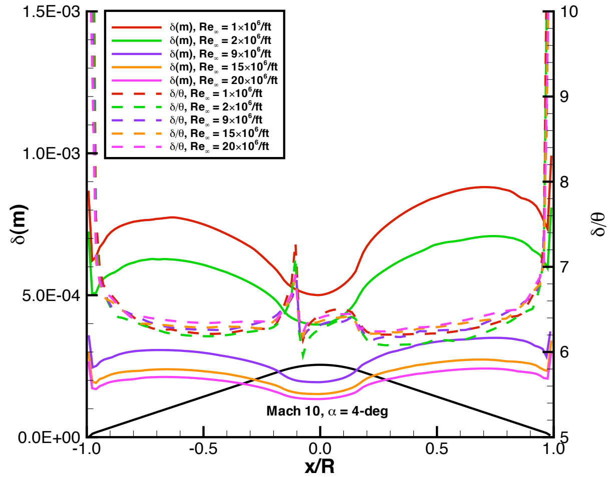


c) Values at $\alpha = 24°$

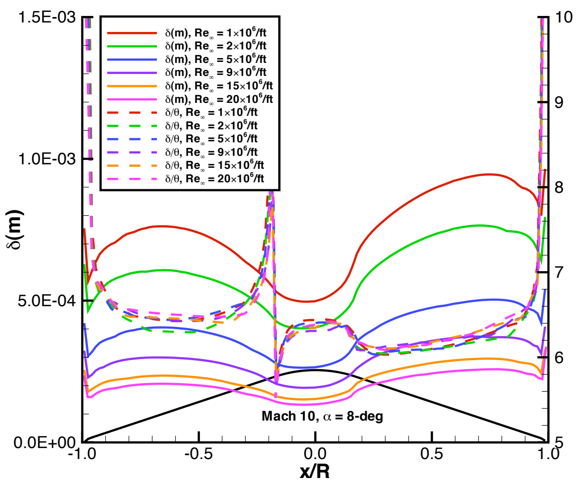
Figure 15. Predicted Mach 8 boundary-layer height parameters (α = 16° to 24°).



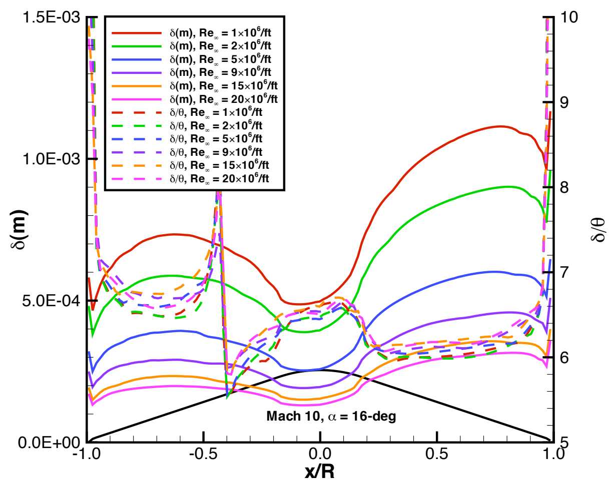
a) Values at $\alpha = 0°$



b) Values at $\alpha = 4°$

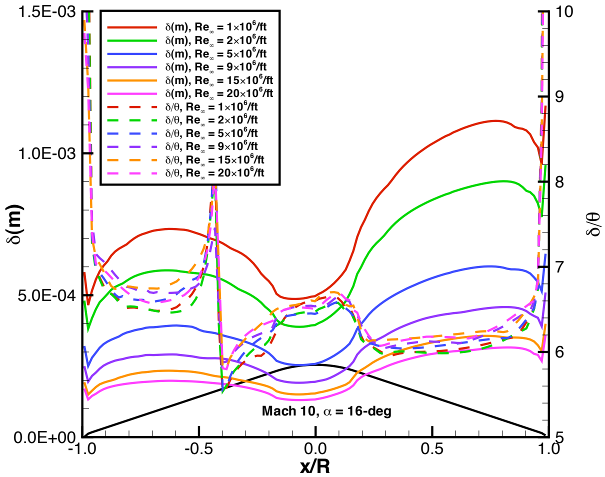


c) Values at $\alpha = 8°$

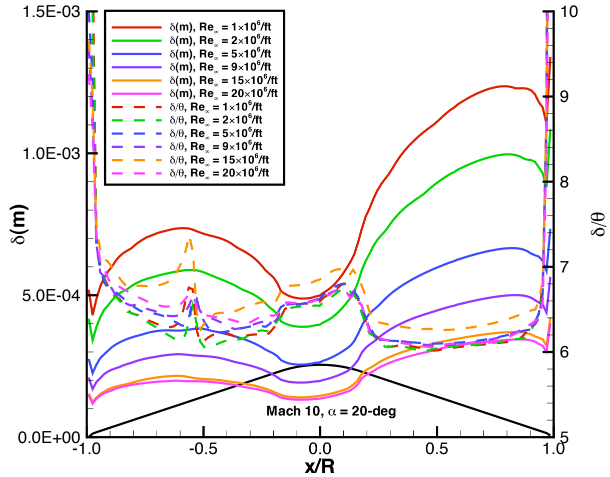


d) Values at $\alpha = 12°$

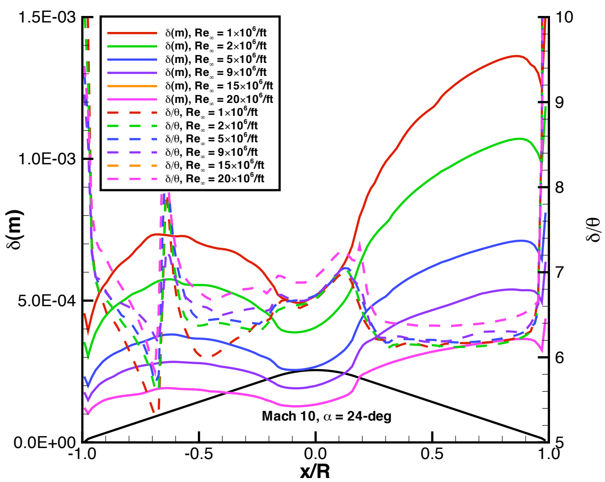
Figure 16. Predicted Mach 10 boundary-layer height parameters ($\alpha = 0°$ to $12°$).



a) Values at $\alpha = 16°$

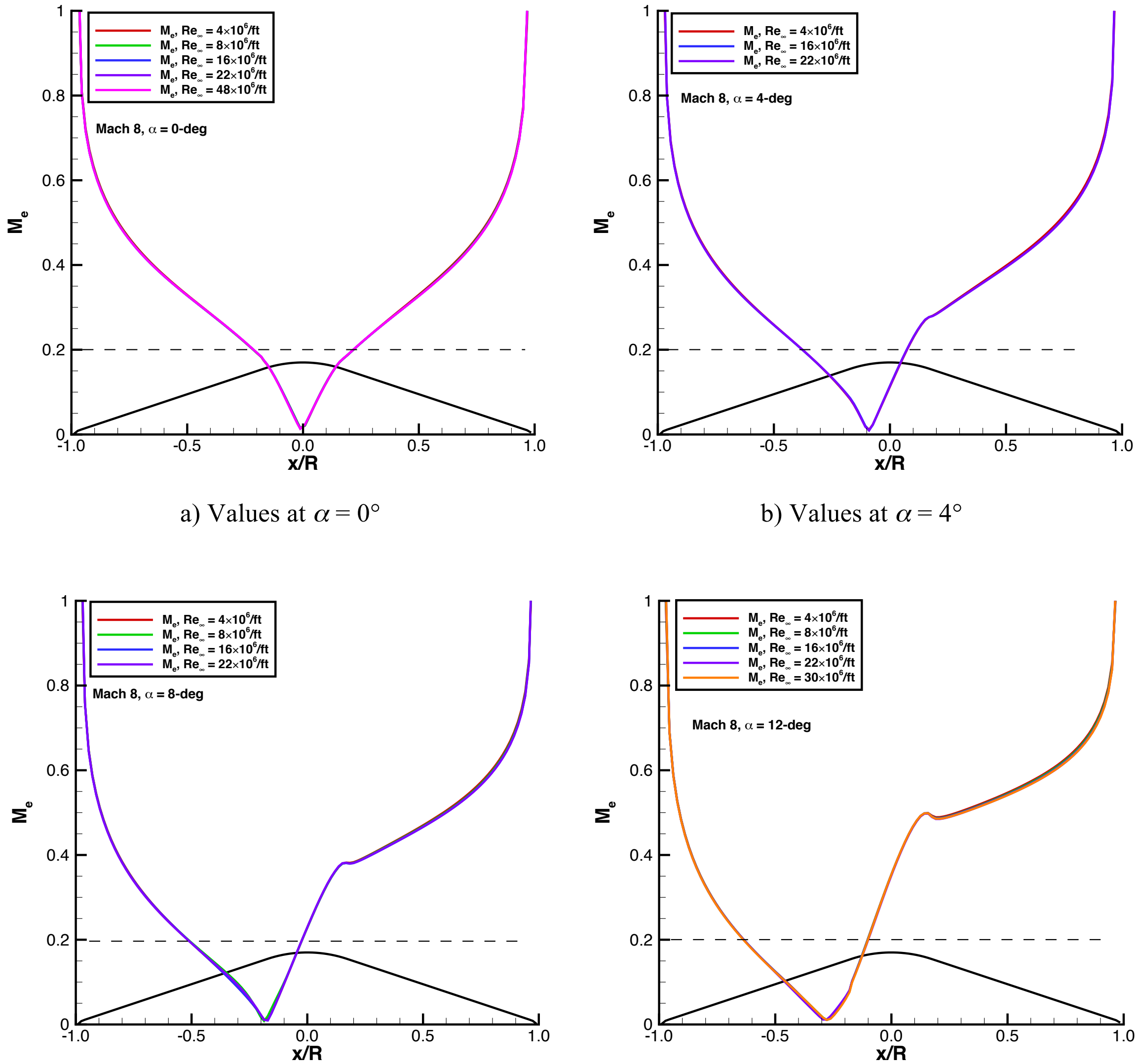


b) Values at $\alpha = 20°$



c) Values at $\alpha = 24°$

Figure 17. Predicted Mach 10 boundary-layer height parameters (α = 16° to 24°).



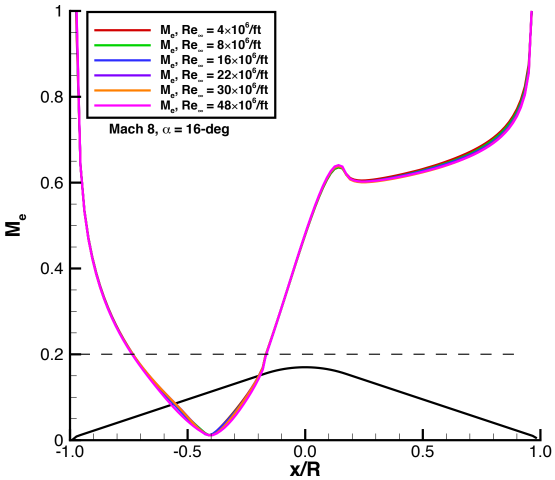
a) Values at $\alpha = 0°$

b) Values at $\alpha = 4°$

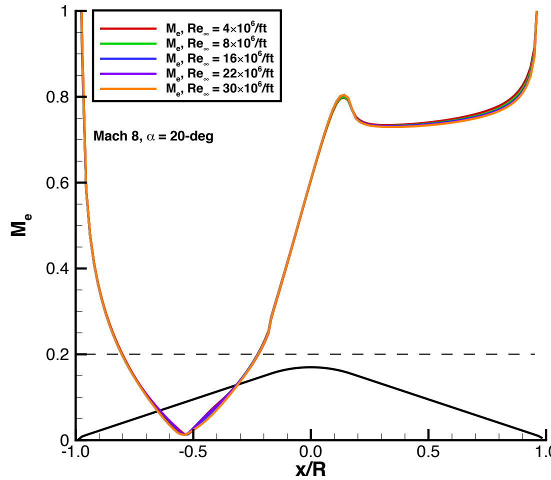
c) Values at $\alpha = 8°$

d) Values at $\alpha = 12°$

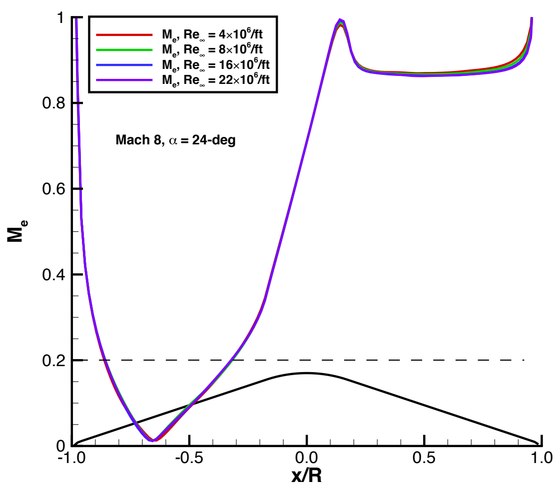
Figure 18. Predicted Mach 8 boundary-layer edge Mach number (α = 0° to 12°).



a) Values at $\alpha = 16°$

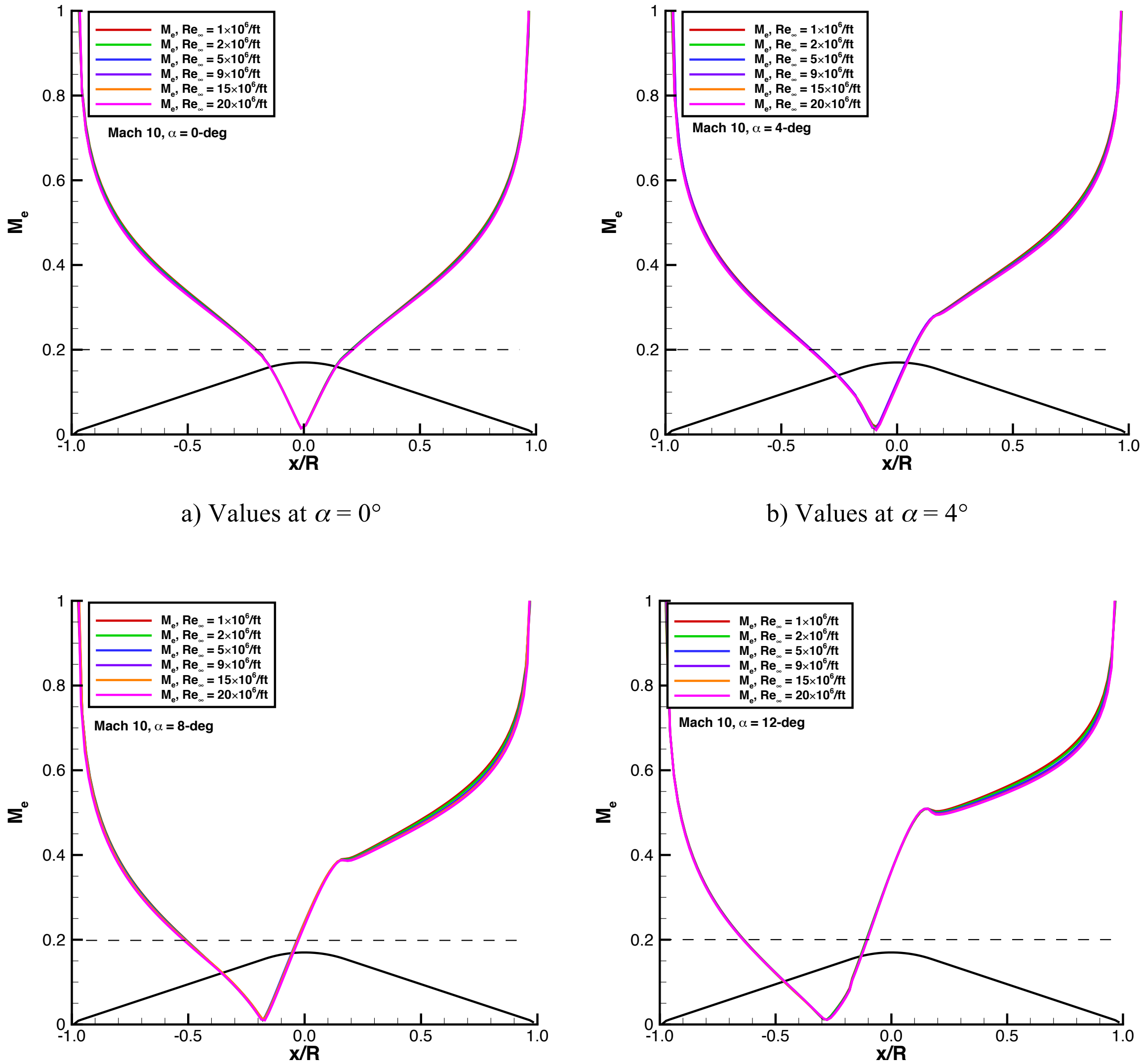


b) Values at $\alpha = 20°$



c) Values at $\alpha = 24°$

Figure 19. Predicted Mach 8 boundary-layer edge Mach number (α = 16° to 24°).



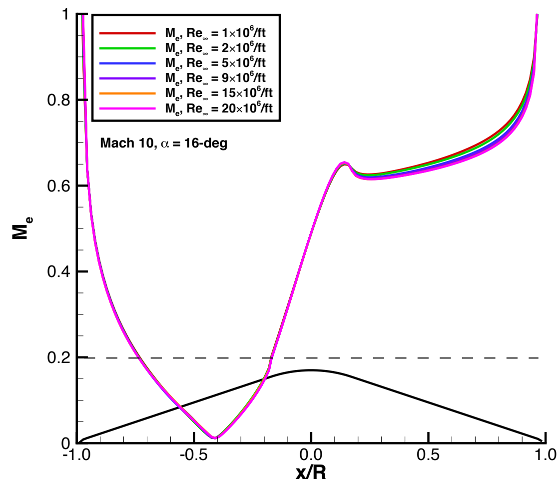
a) Values at $\alpha = 0°$

b) Values at $\alpha = 4°$

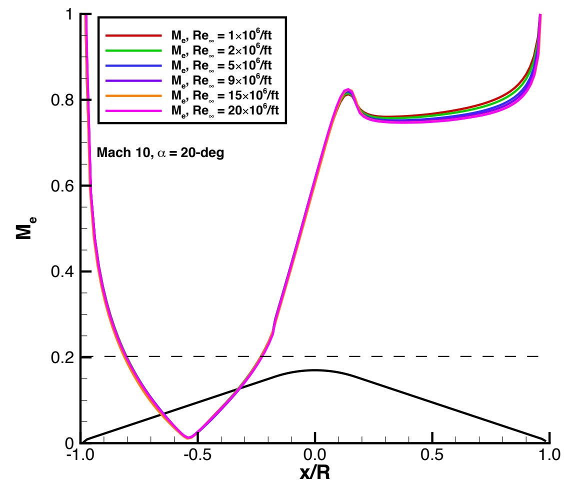
c) Values at $\alpha = 8°$

d) Values at $\alpha = 12°$

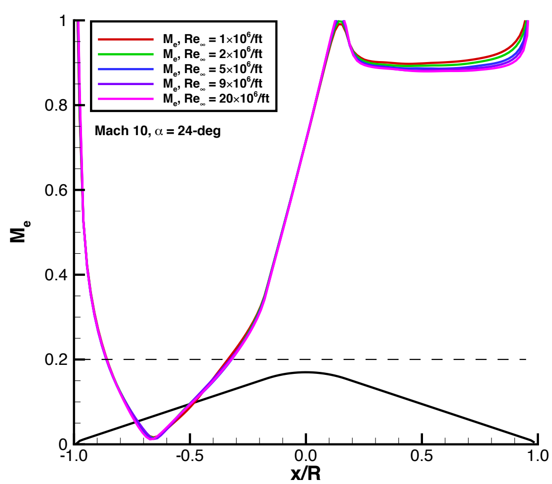
Figure 20. Predicted Mach 10 boundary-layer edge Mach number (α = 0° to 12°).



a) Values at $\alpha = 16°$

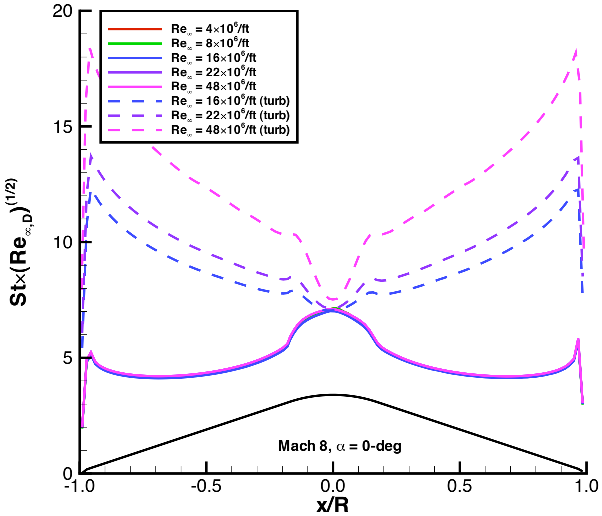


b) Values at $\alpha = 20°$

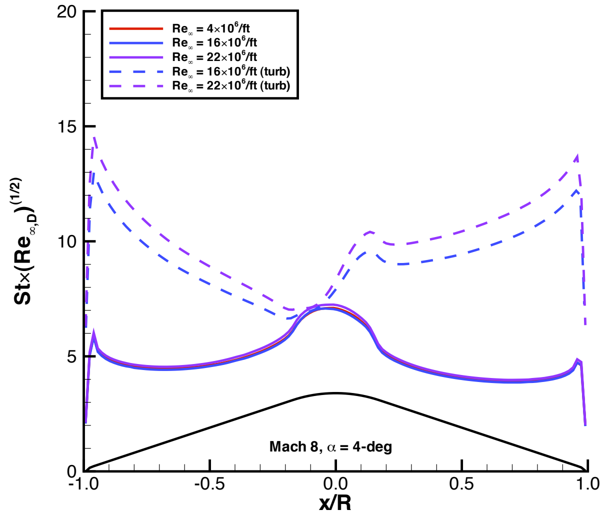


c) Values at $\alpha = 24°$

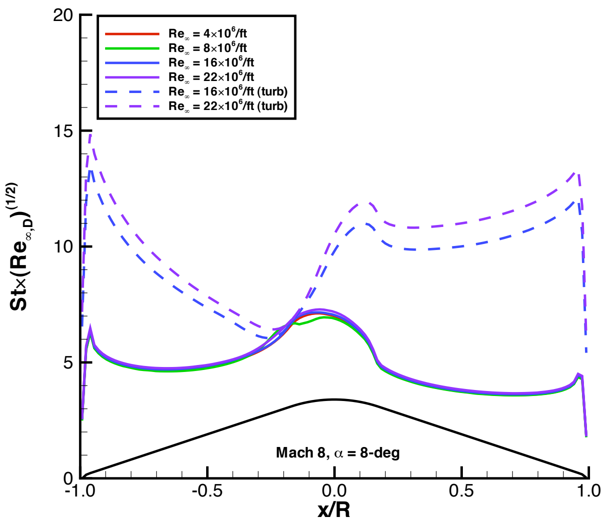
Figure 21. Predicted Mach 10 boundary-layer edge Mach number (α = 16° to 24°).



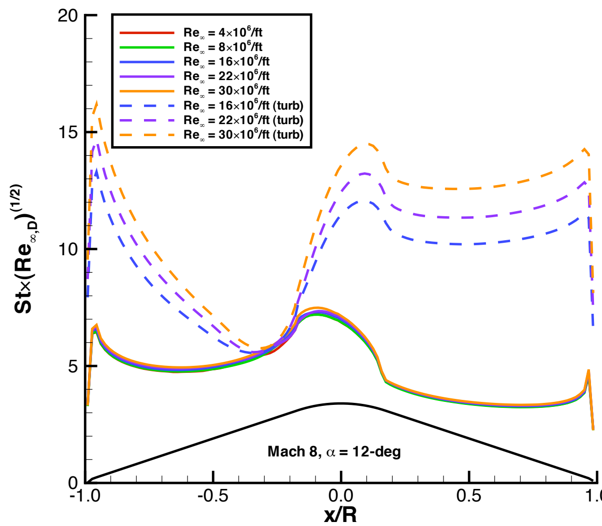
a) Values at $\alpha = 0°$



b) Values at $\alpha = 4°$

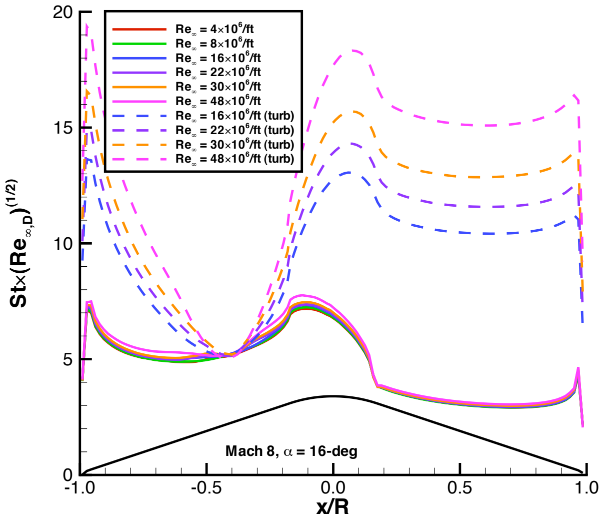


c) Values at $\alpha = 8°$

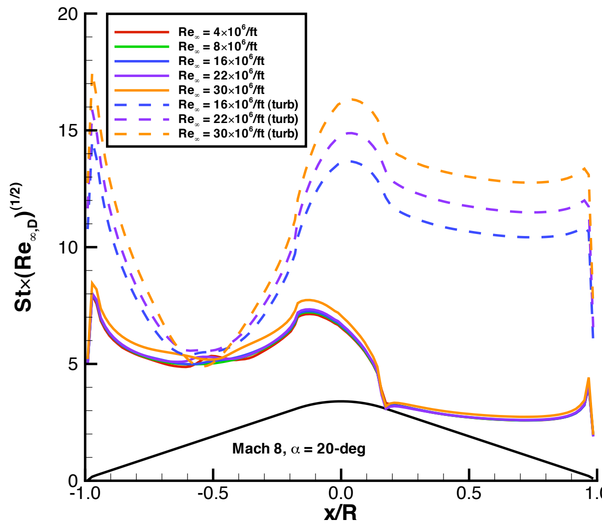


d) Values at $\alpha = 12°$

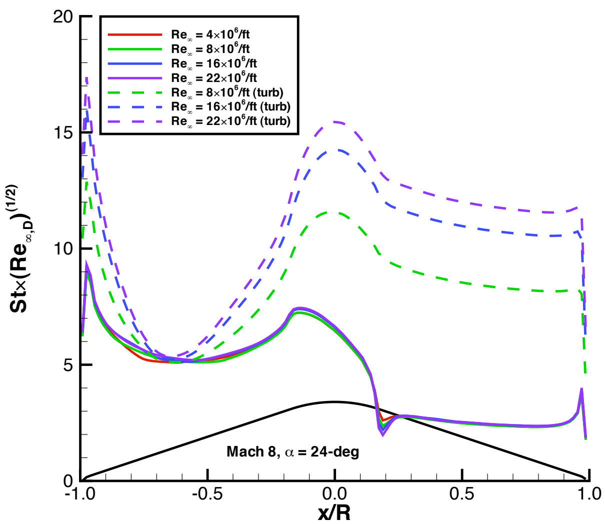
Figure 22. Laminar correlation of predicted Mach 8 heating (α = 0° to 12°).



a) Values at $\alpha = 16°$

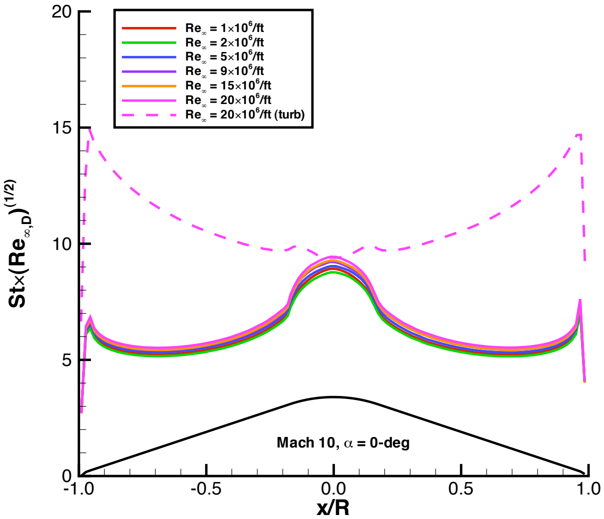


b) Values at $\alpha = 20°$

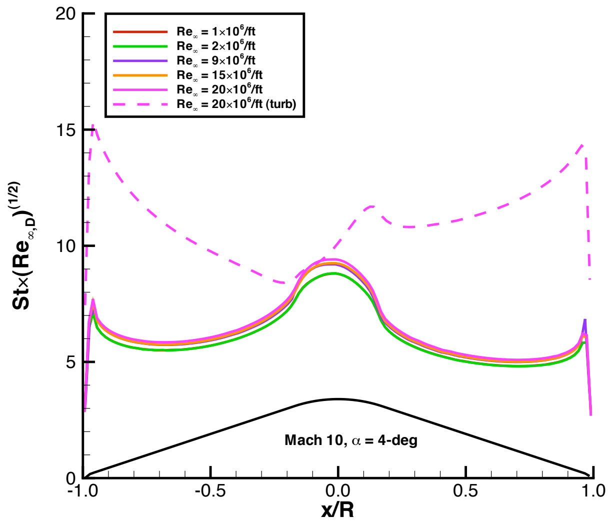


c) Values at $\alpha = 24°$

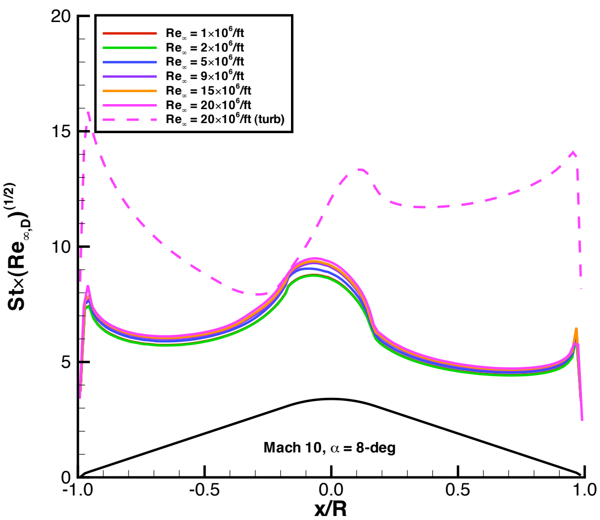
Figure 23. Laminar correlation of predicted Mach 8 heating (α = 16° to 24°).



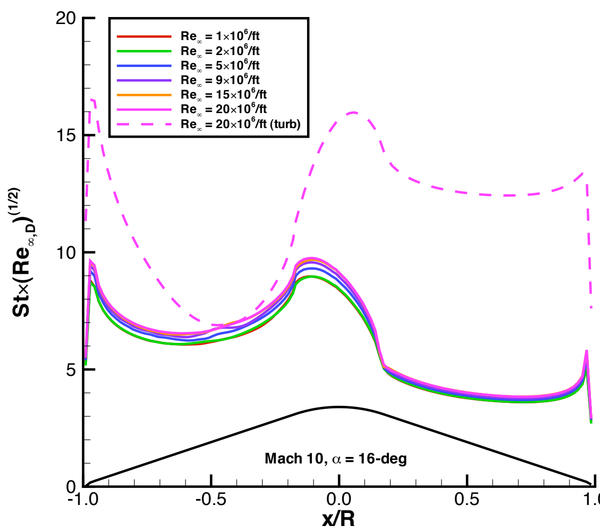
a) Values at $\alpha = 0°$



b) Values at $\alpha = 4°$

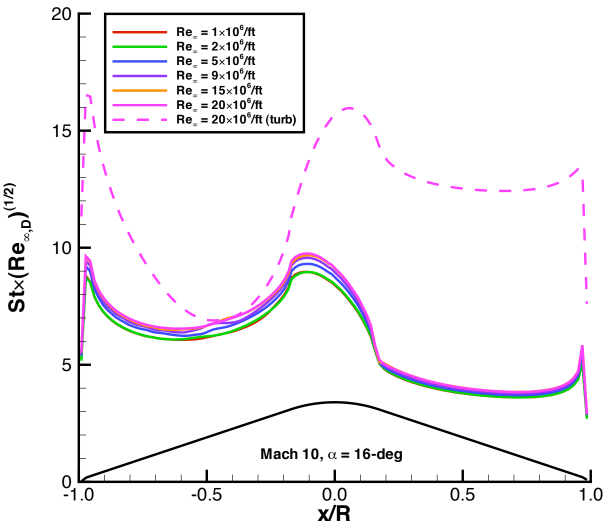


c) Values at $\alpha = 8°$

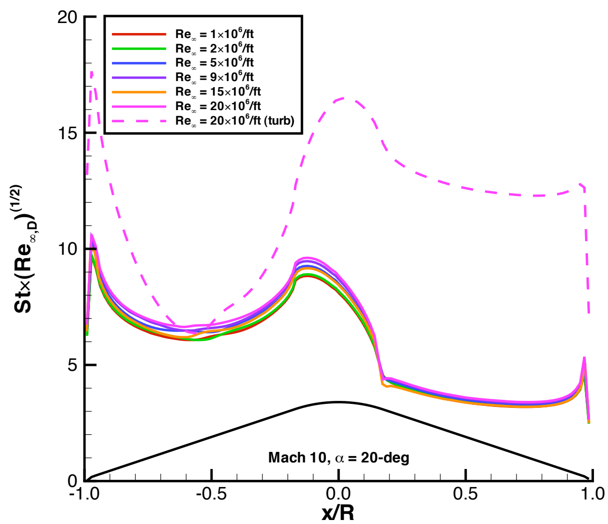


d) Values at $\alpha = 12°$

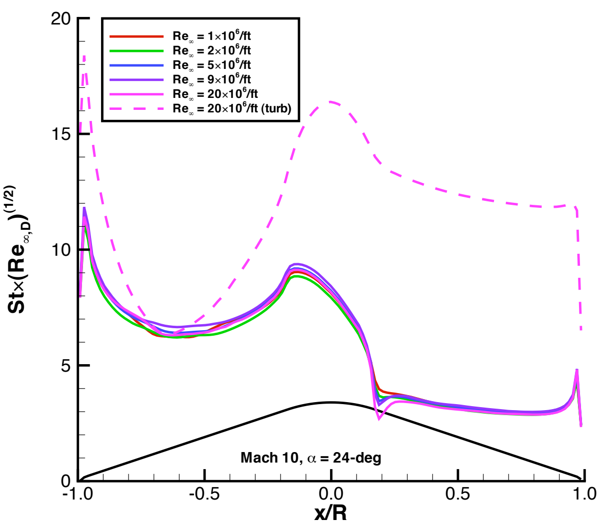
Figure 24. Laminar correlation of predicted Mach 10 heating (α = 0° to 12°).



a) Values at $\alpha = 16°$

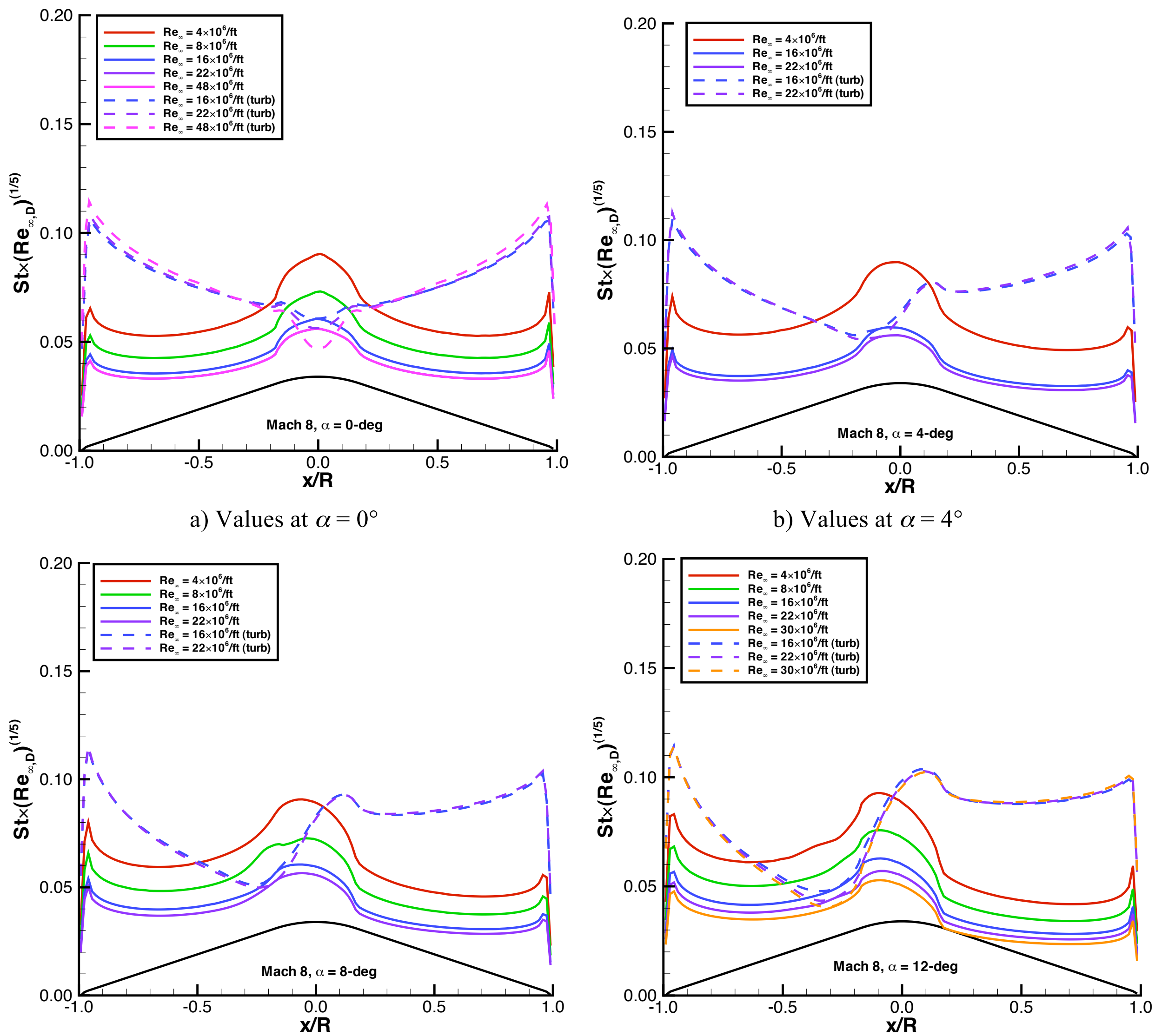


b) Values at $\alpha = 20°$



c) Values at $\alpha = 24°$

Figure 25. Laminar correlation of predicted Mach 10 heating (α = 16° to 24°).



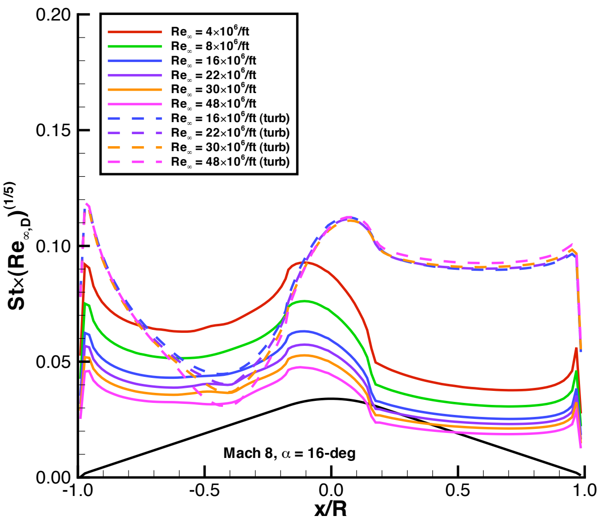
a) Values at $\alpha = 0°$

b) Values at $\alpha = 4°$

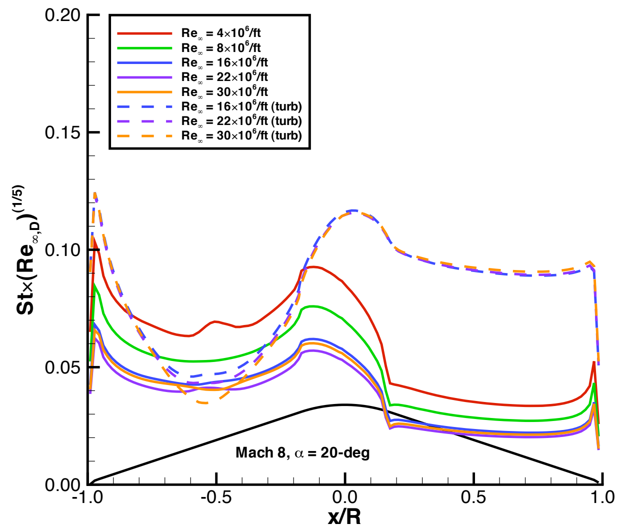
c) Values at $\alpha = 8°$

d) Values at $\alpha = 12°$

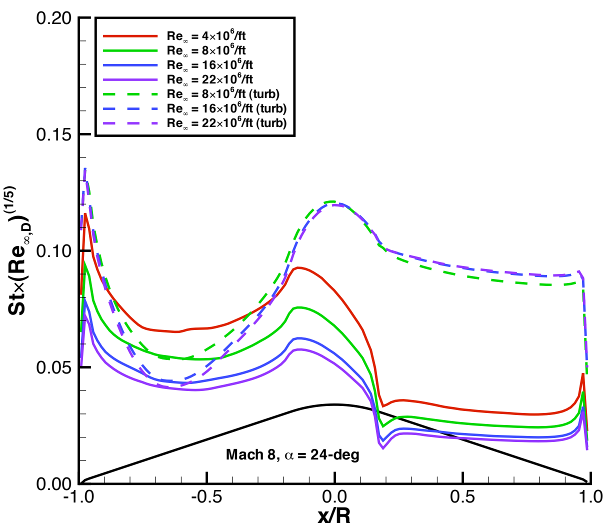
Figure 26. Turbulent correlation of predicted Mach 8 heating (α = 0° to 12°).



a) Values at $\alpha = 16°$

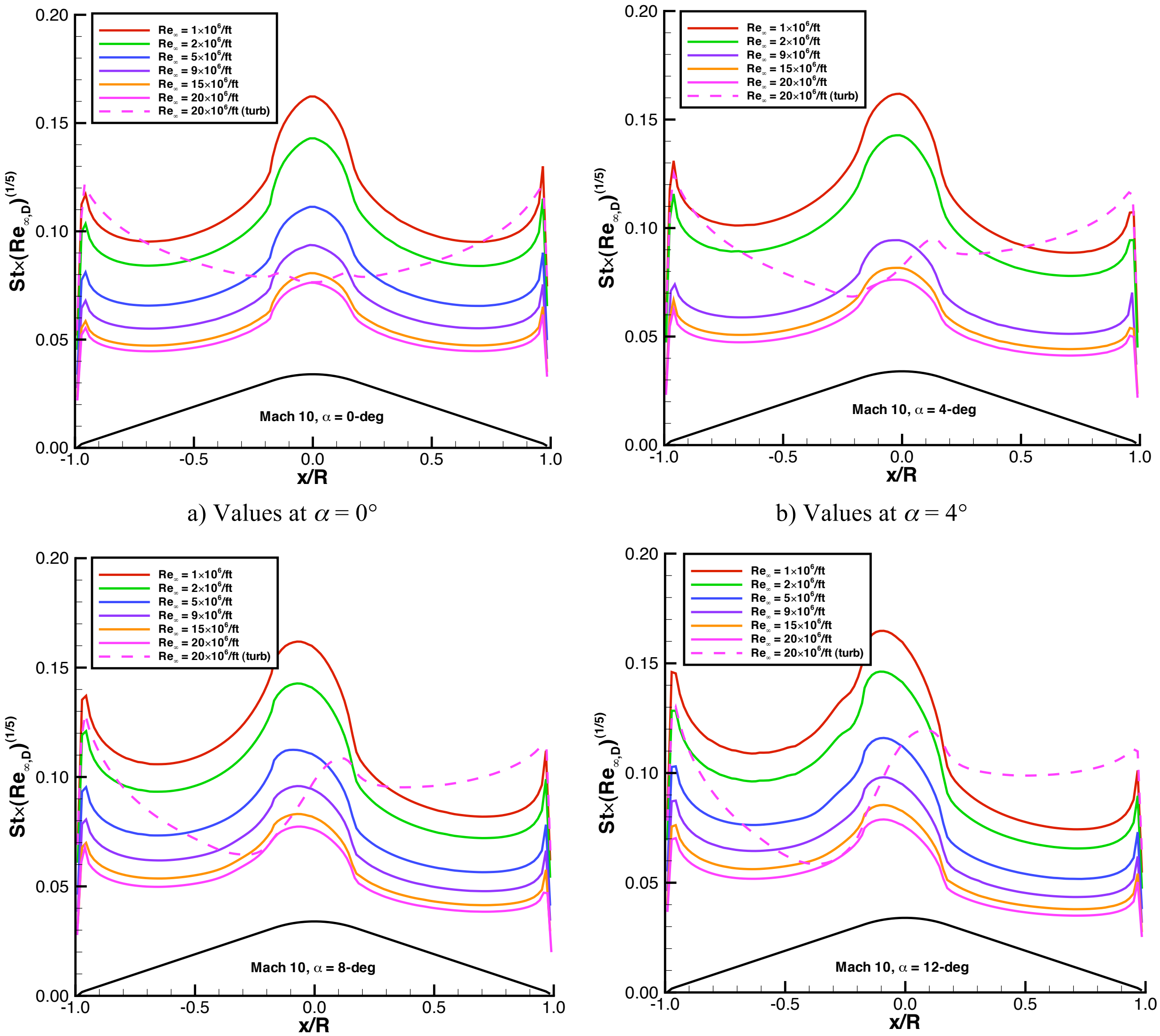


b) Values at $\alpha = 20°$



c) Values at $\alpha = 24°$

Figure 27. Turbulent correlation of predicted Mach 8 heating (α = 16° to 24°).



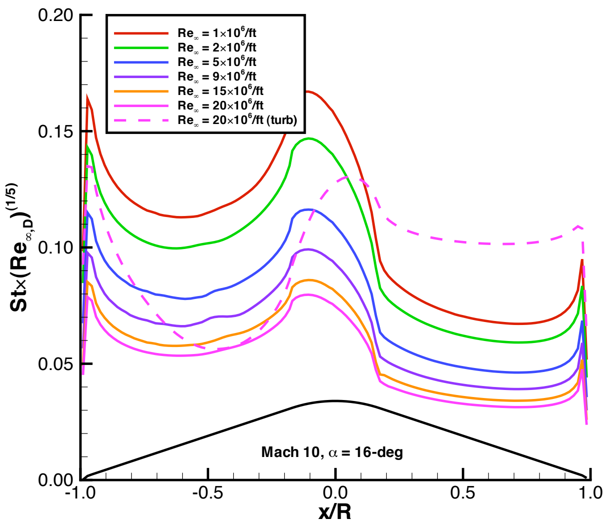
a) Values at $\alpha = 0°$

b) Values at $\alpha = 4°$

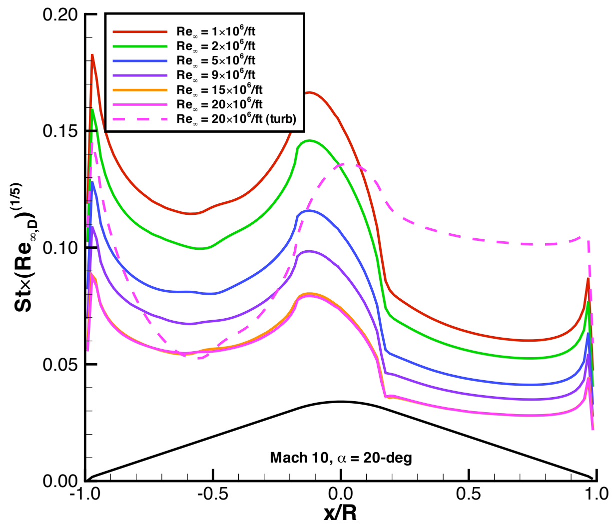
c) Values at $\alpha = 8°$

d) Values at $\alpha = 12°$

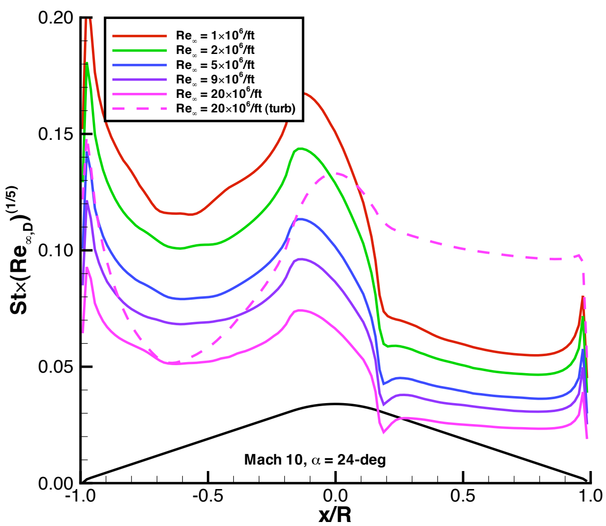
Figure 28. Turbulent correlation of predicted Mach 10 heating (α = 0° to 12°).



a) Values at $\alpha = 16°$

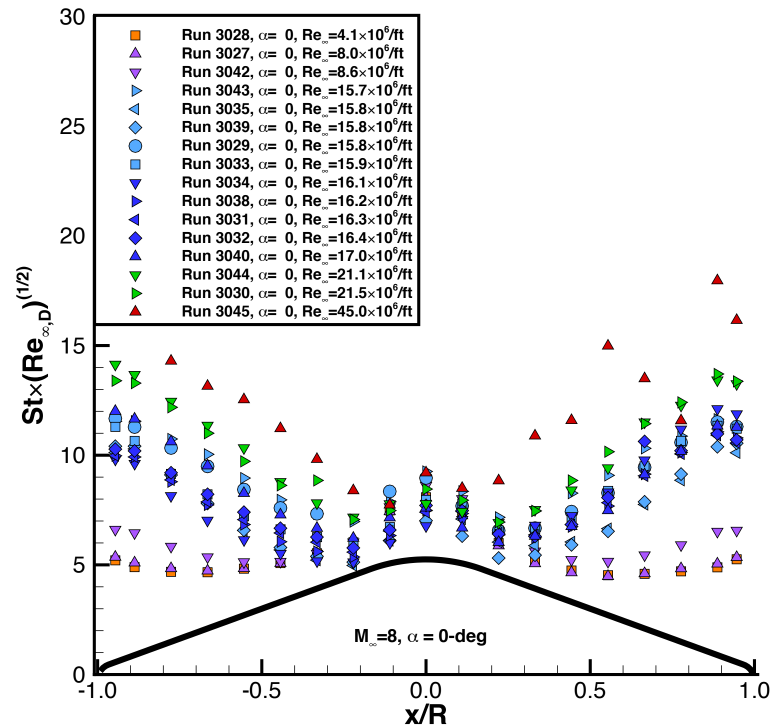


b) Values at $\alpha = 20°$

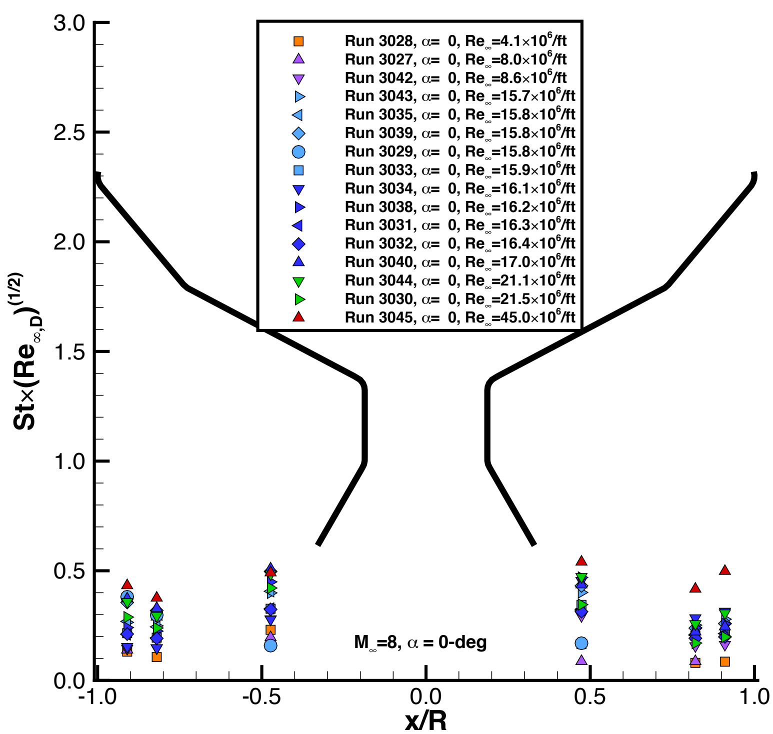


c) Values at $\alpha = 24°$

Figure 29. Turbulent correlation of predicted Mach 10 heating (α = 16° to 24°).

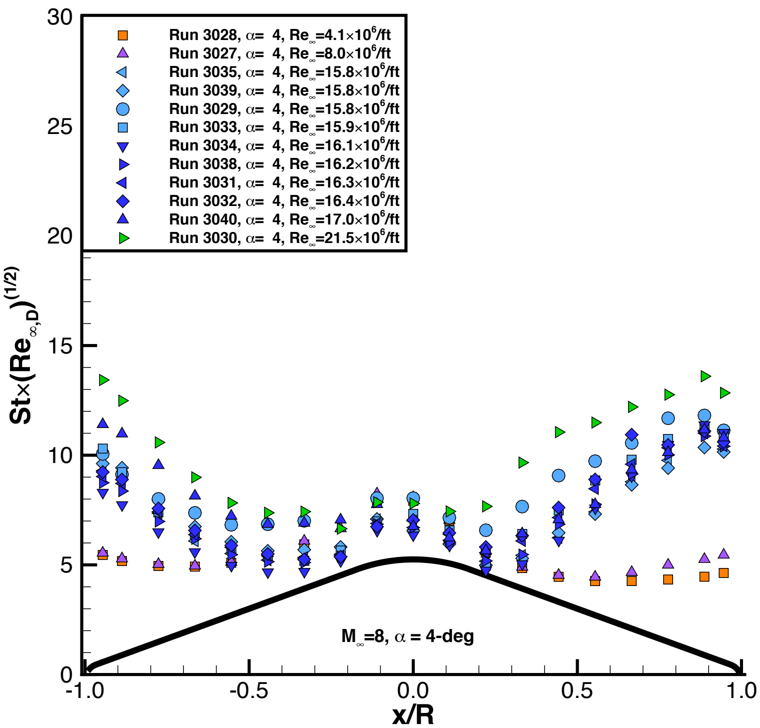


a) Forebody

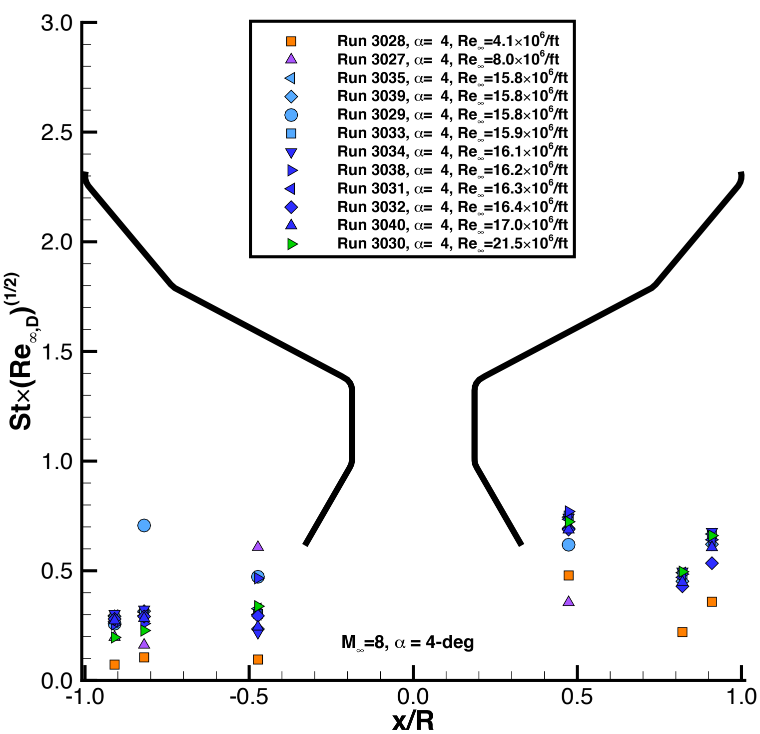


b) Aftbody

Figure 30. Reynolds number effects on fore/aft-body centerline heating, Mach 8 nozzle, α = 0°.

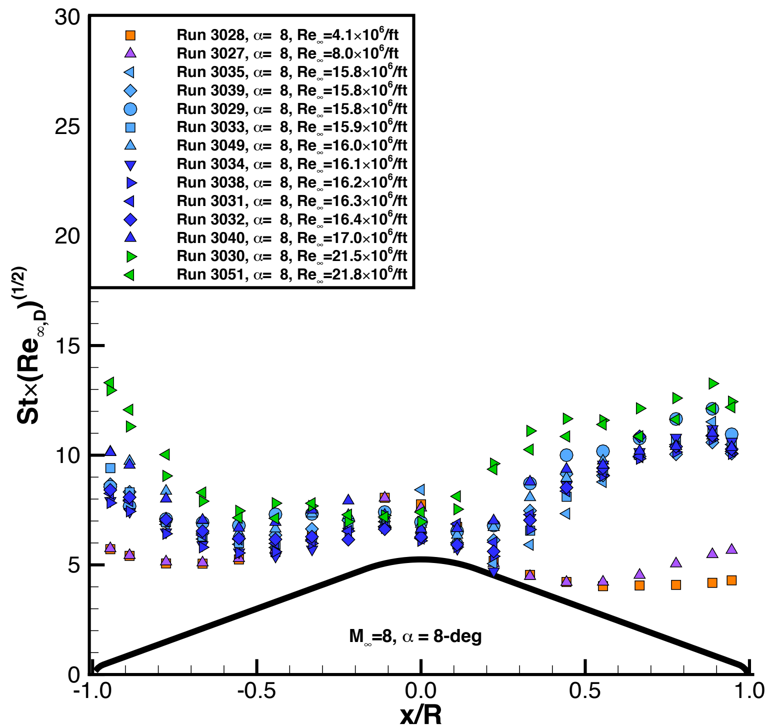


a) Forebody

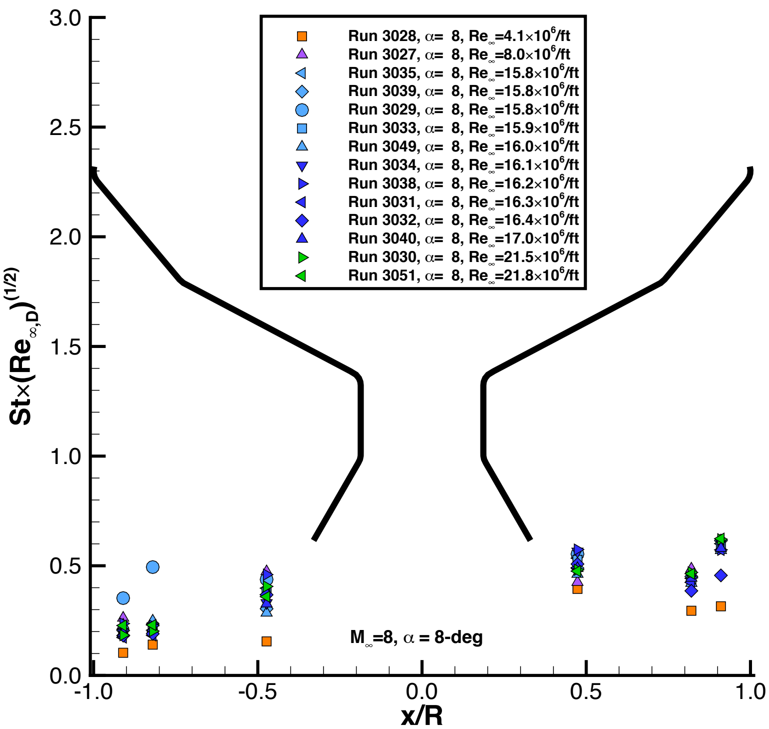


b) Aftbody

Figure 31. Reynolds number effects on fore/aft-body centerline heating, Mach 8 nozzle, α = 4°.

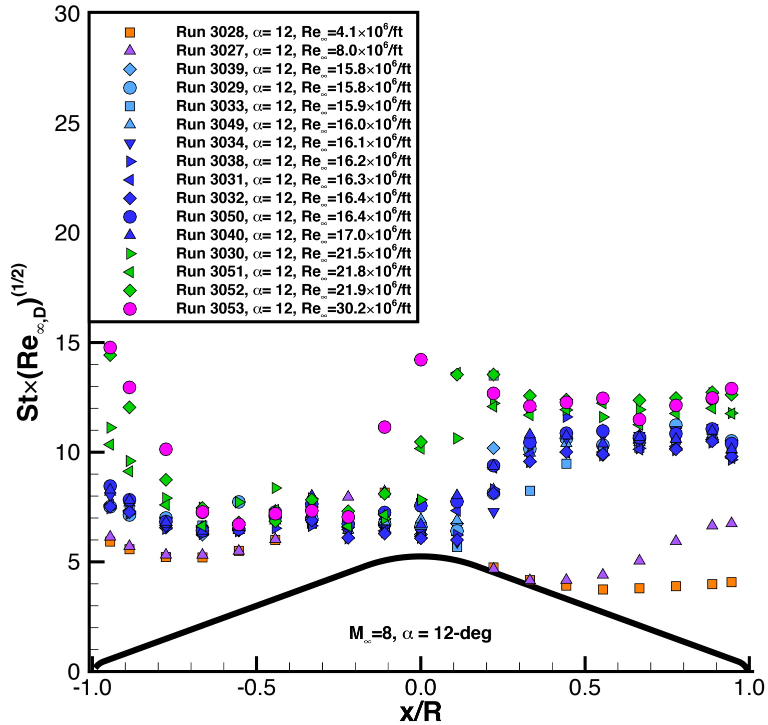


a) Forebody

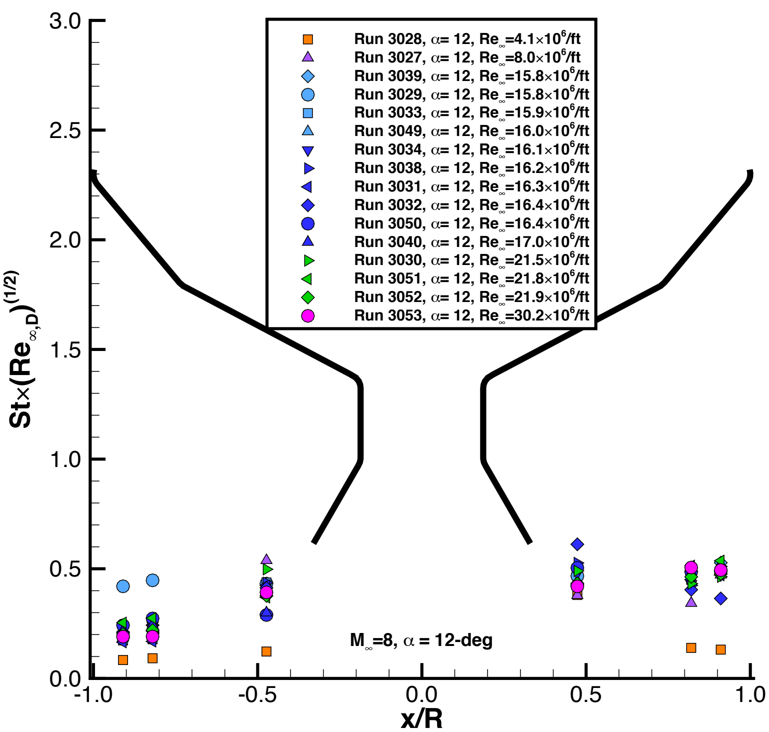


b) Aftbody

Figure 32. Reynolds number effects on fore/aft-body centerline heating, Mach 8 nozzle, α = 8°.

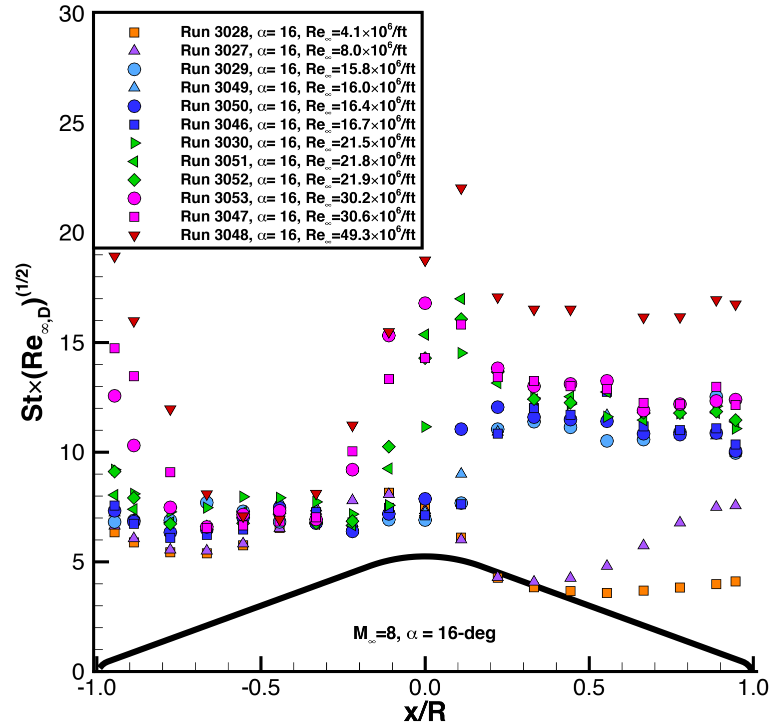


a) Forebody

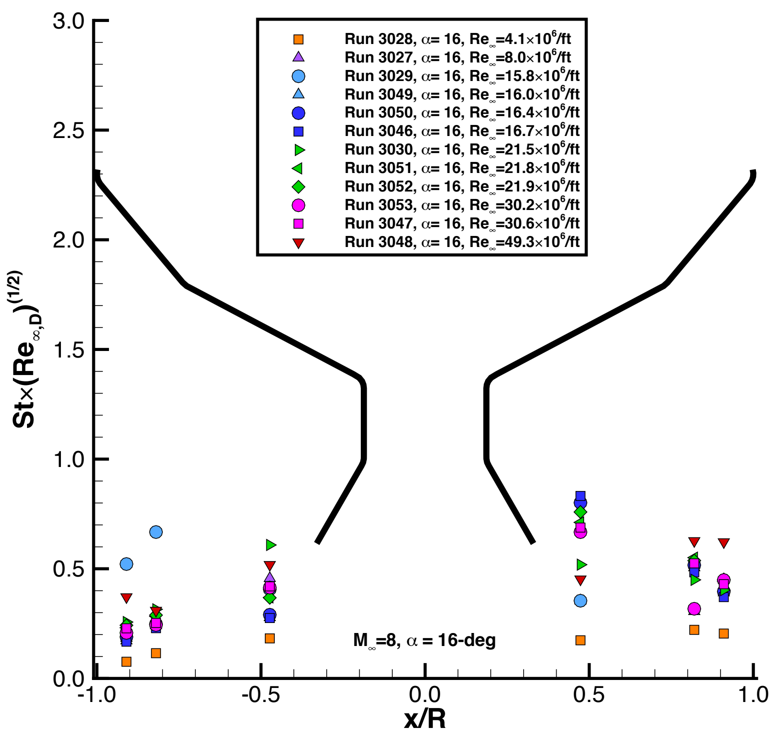


b) Aftbody

Figure 33. Reynolds number effects on fore/aft-body centerline heating, Mach 8 nozzle, α = 12°.

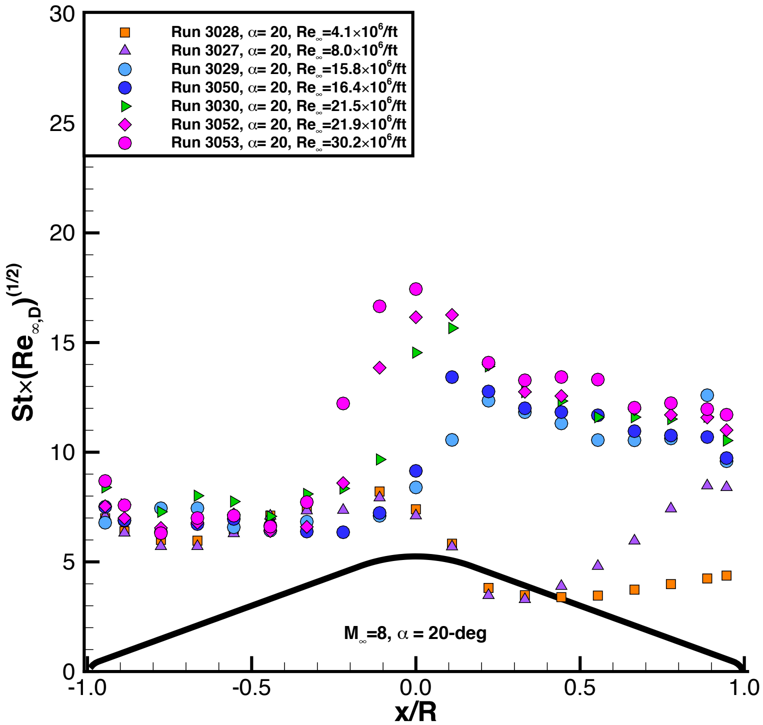


a) Forebody

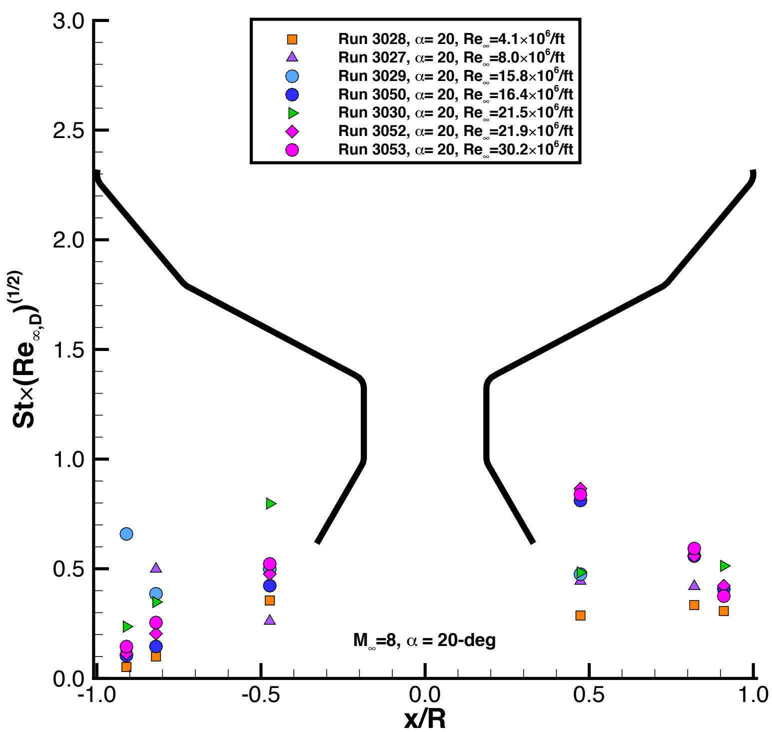


b) Aftbody

Figure 34. Reynolds number effects on fore/aft-body centerline heating, Mach 8 nozzle, α = 16°.

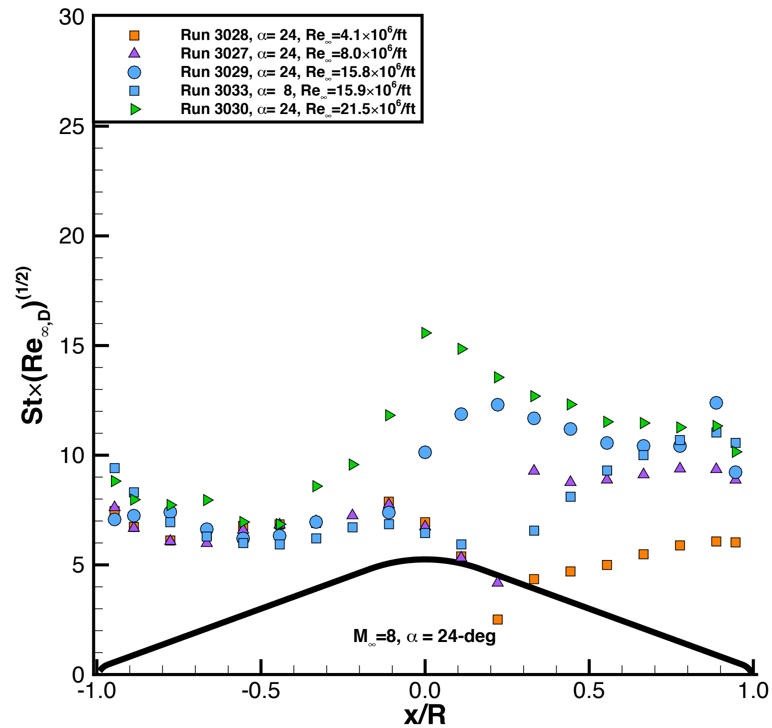


a) Forebody

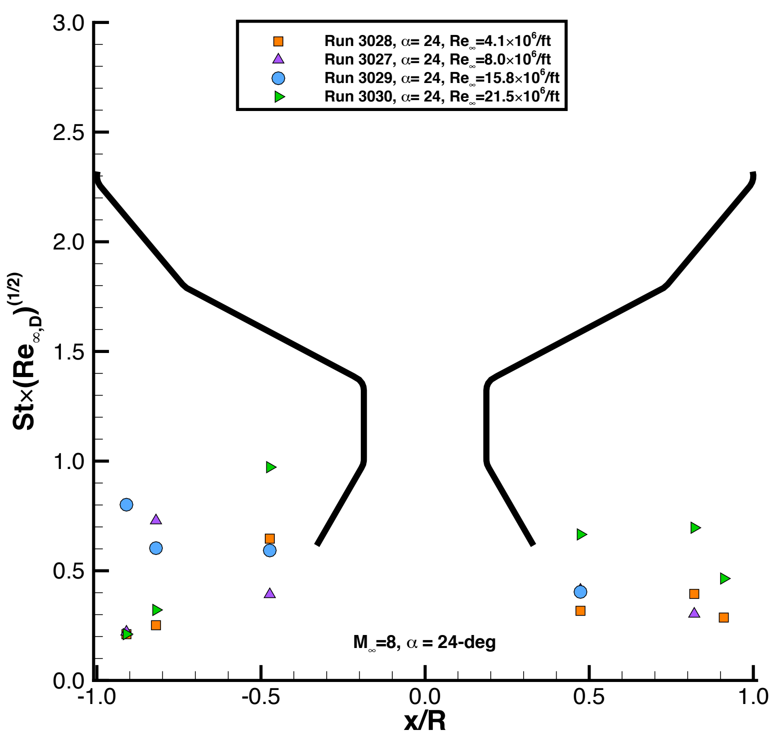


b) Aftbody

Figure 35. Reynolds number effects on fore/aft-body centerline heating, Mach 8 nozzle, α = 20°.

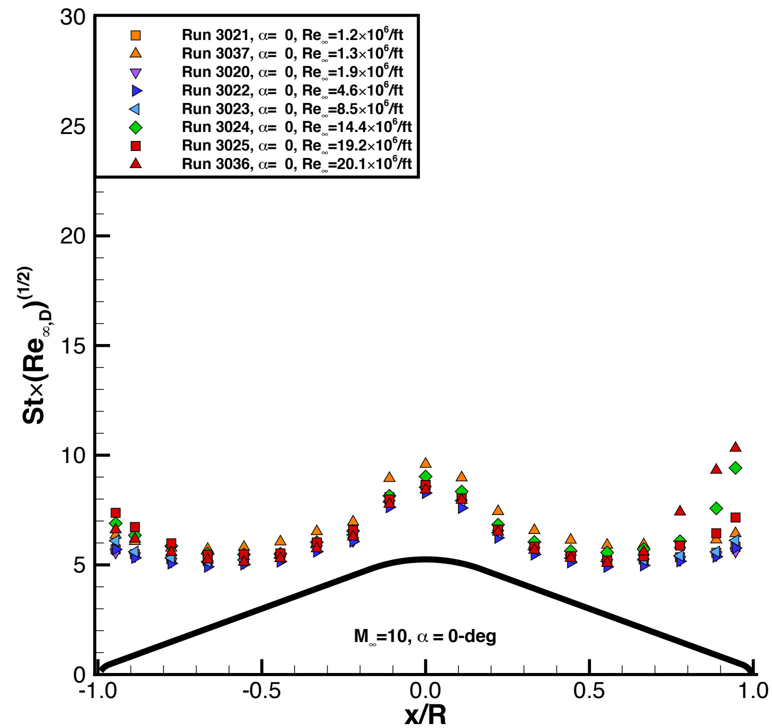


a) Forebody

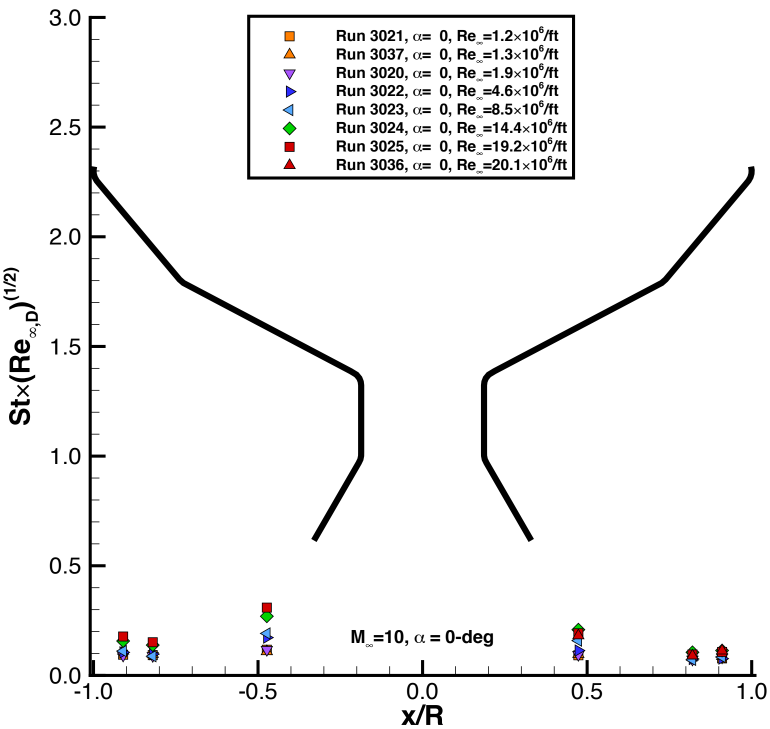


b) Aftbody

Figure 36. Reynolds number effects on fore/aft-body centerline heating, Mach 8 nozzle, α = 24°.

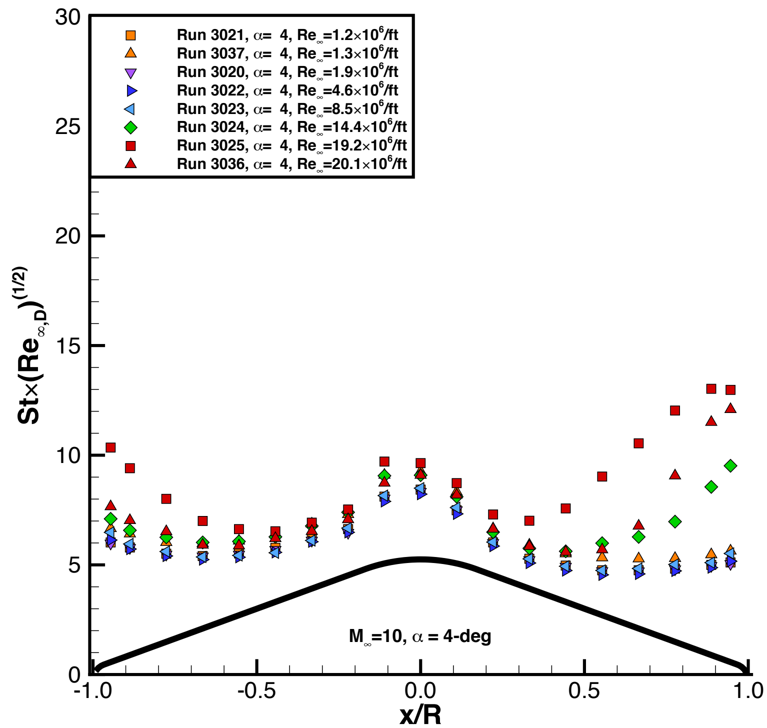


a) Forebody

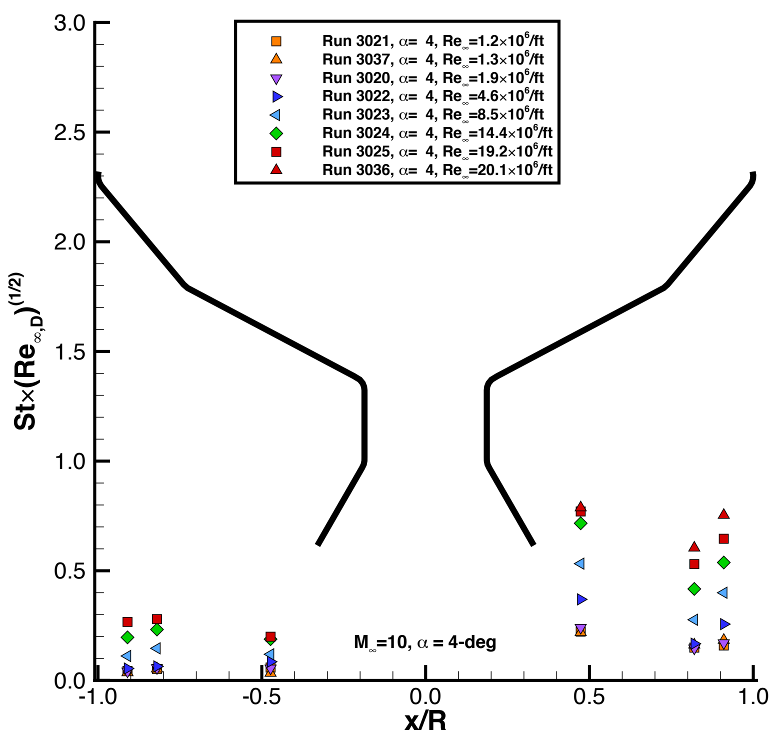


b) Aftbody

Figure 37. Reynolds number effects on fore/aft-body centerline heating, Mach 10 nozzle, α = 0°.

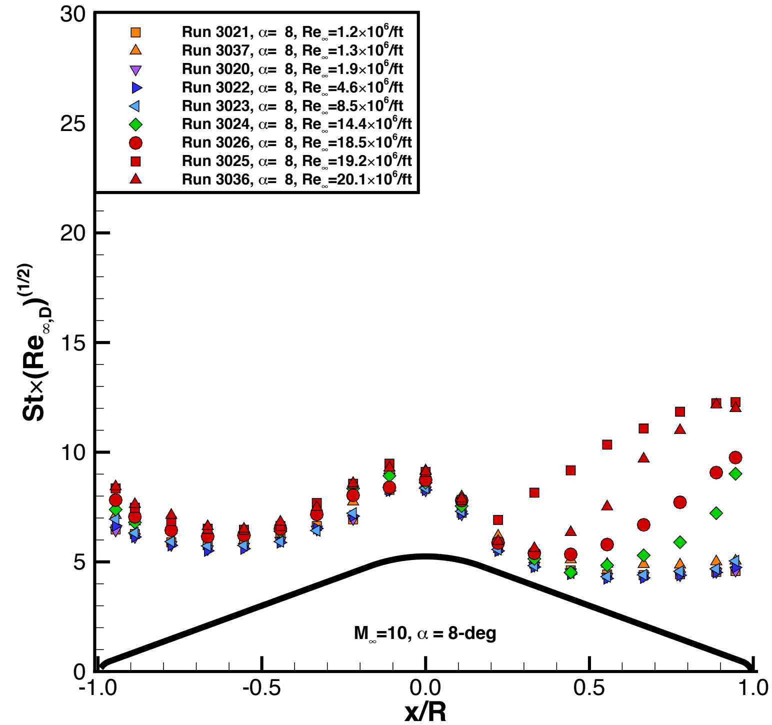


a) Forebody

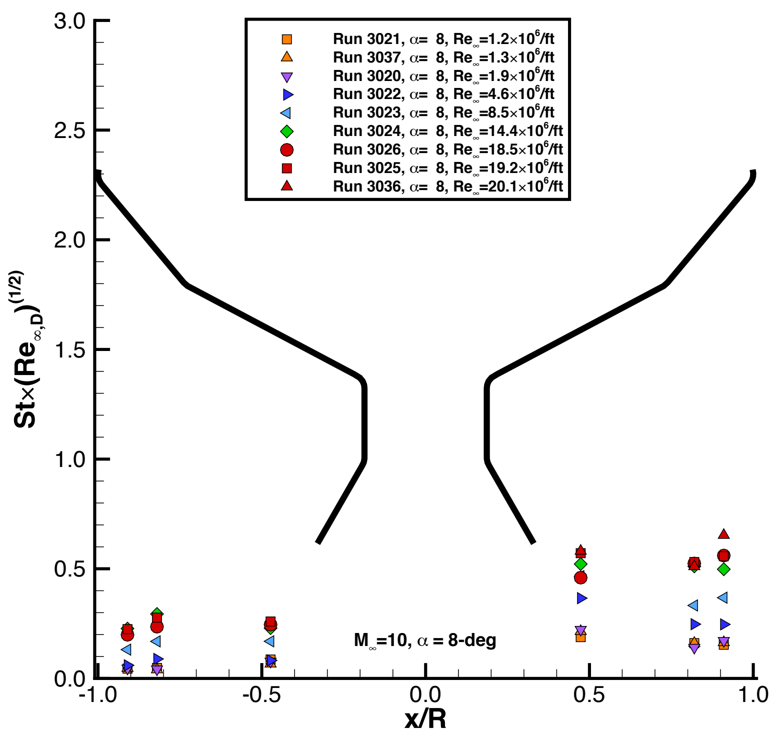


b) Aftbody

Figure 38. Reynolds number effects on fore/aft-body centerline heating, Mach 10 nozzle, α = 4°.

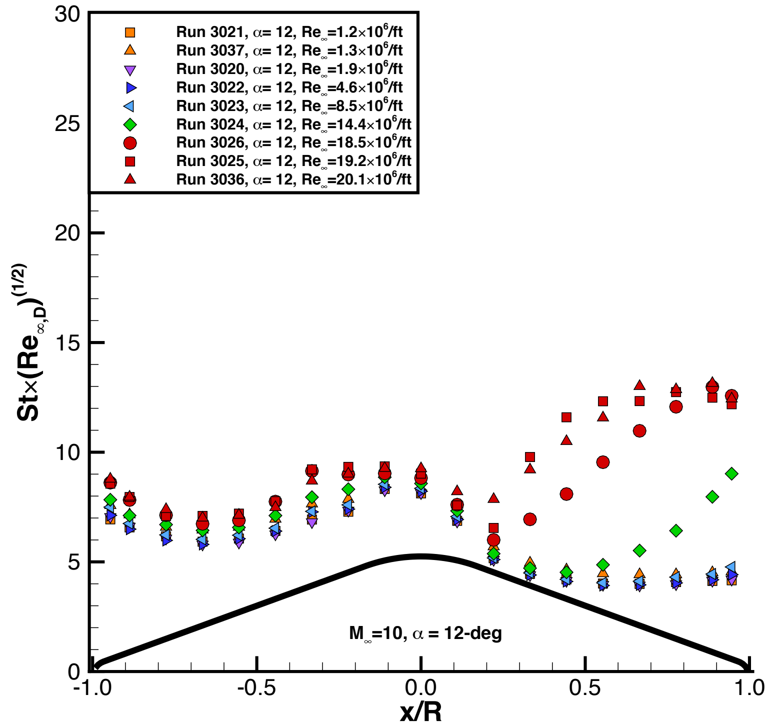


a) Forebody

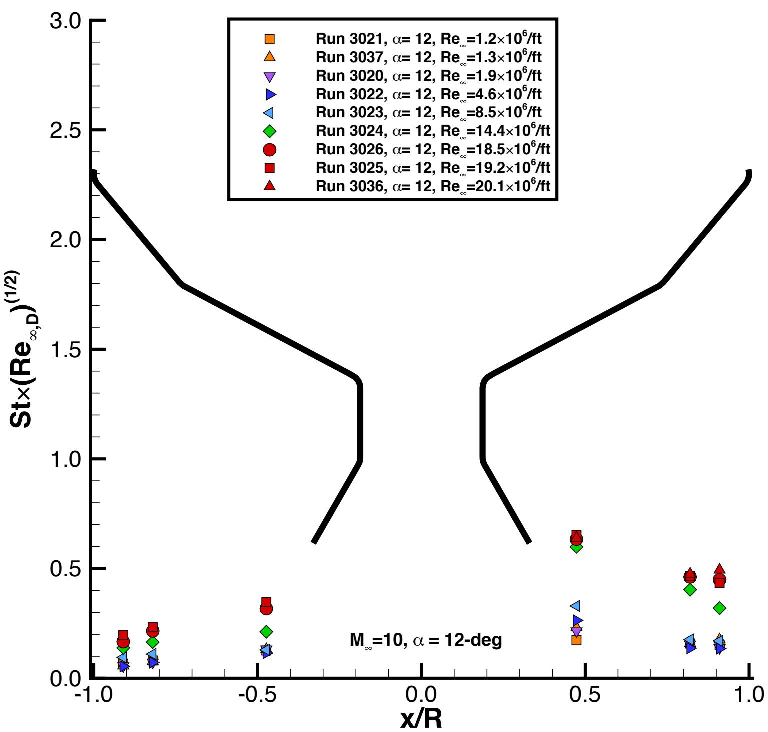


b) Aftbody

Figure 39. Reynolds number effects on fore/aft-body centerline heating, Mach 10 nozzle, α = 8°.

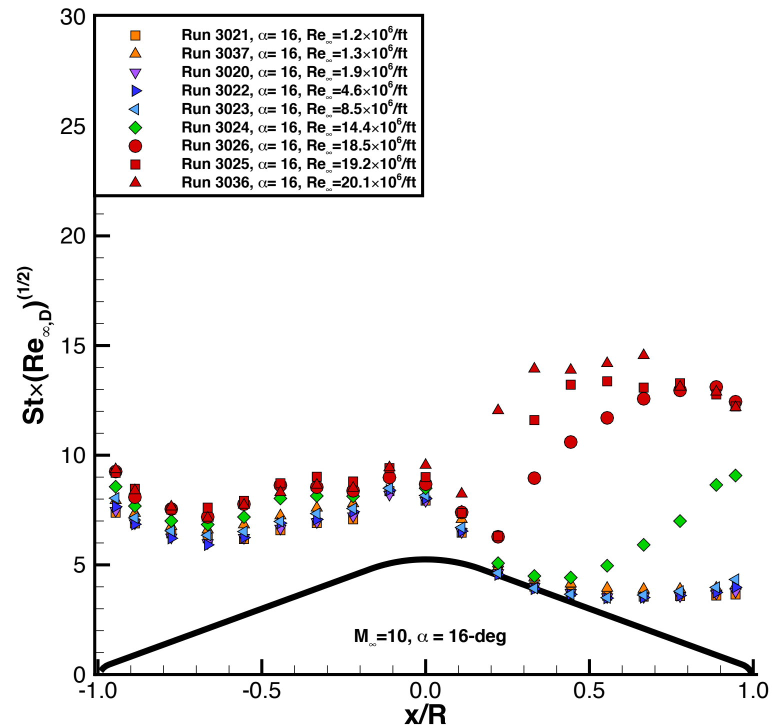


a) Forebody

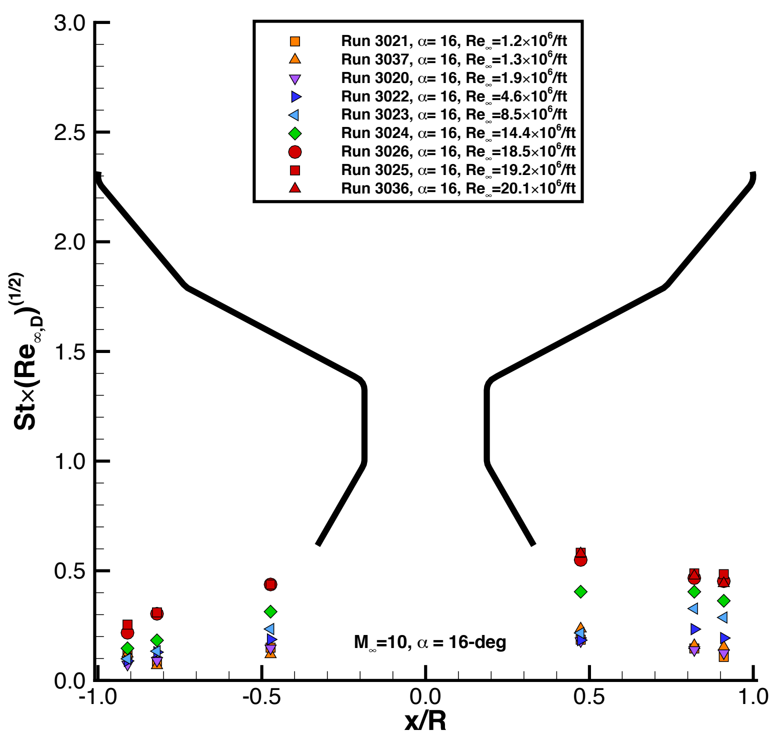


b) Aftbody

Figure 40. Reynolds number effects on fore/aft-body centerline heating, Mach 10 nozzle, α = 12°.

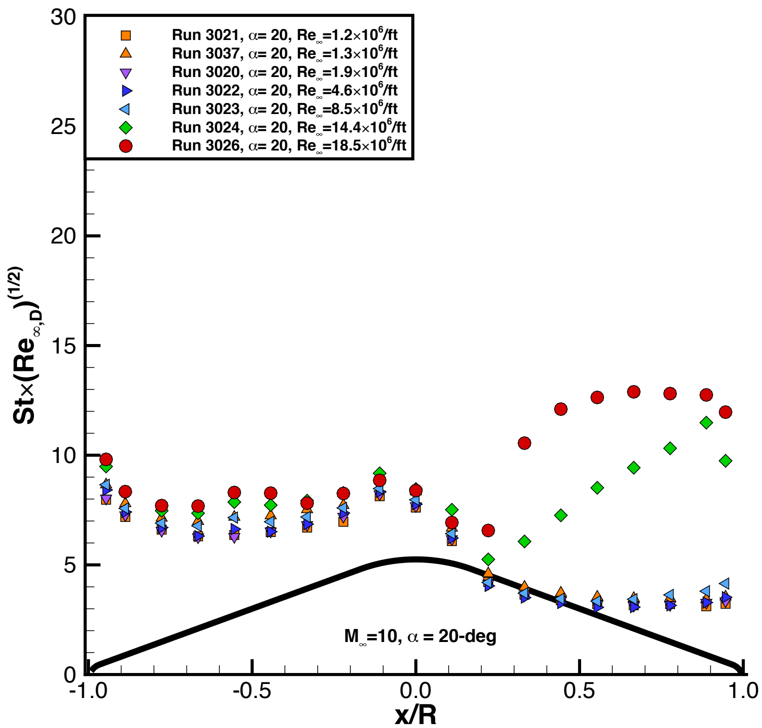


a) Forebody

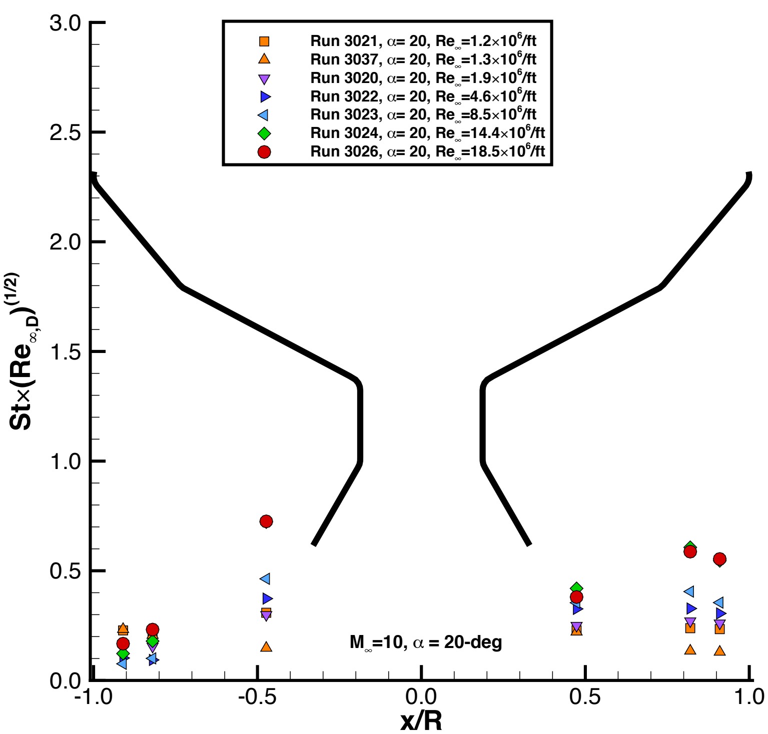


b) Aftbody

Figure 41. Reynolds number effects on fore/aft-body centerline heating, Mach 10 nozzle, α = 16°.

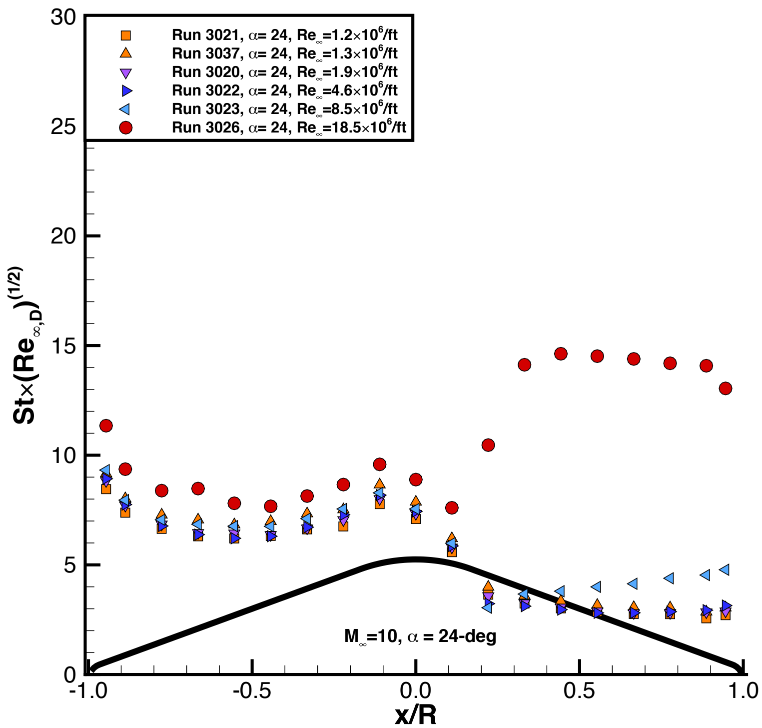


a) Forebody

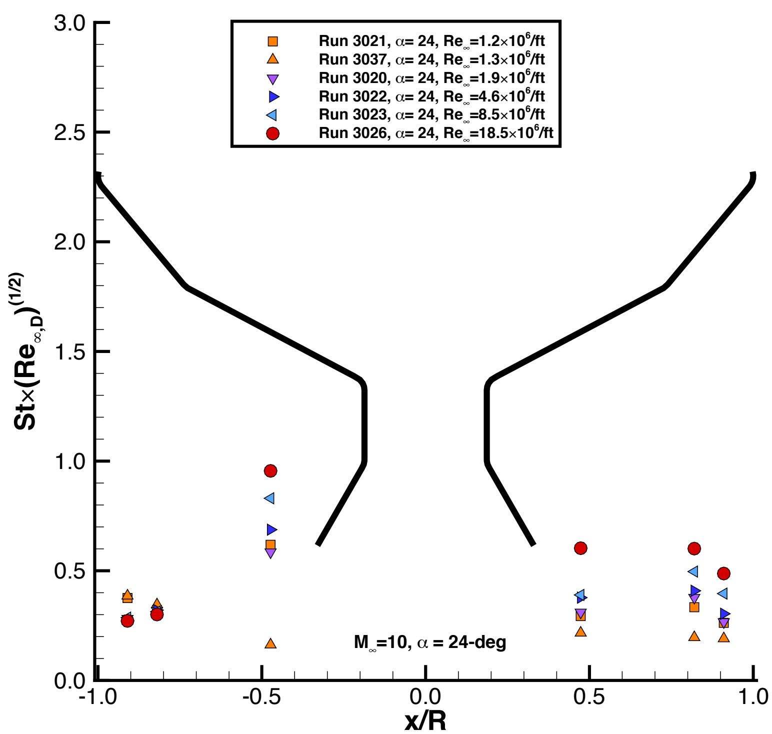


b) Aftbody

Figure 42. Reynolds number effects on fore/aft-body centerline heating, Mach 10 nozzle, α = 20°.

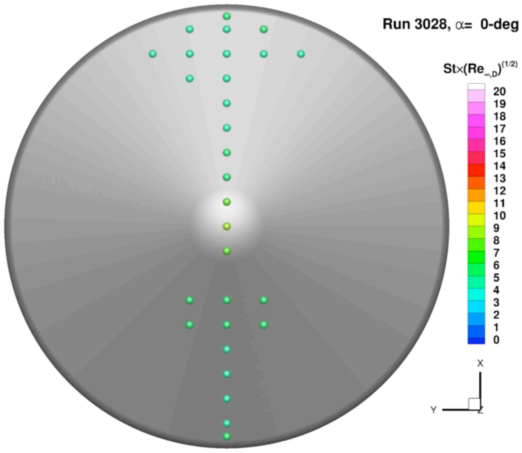


a) Forebody

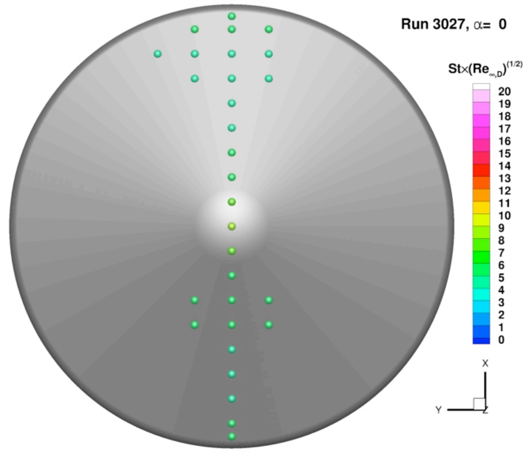


b) Aftbody

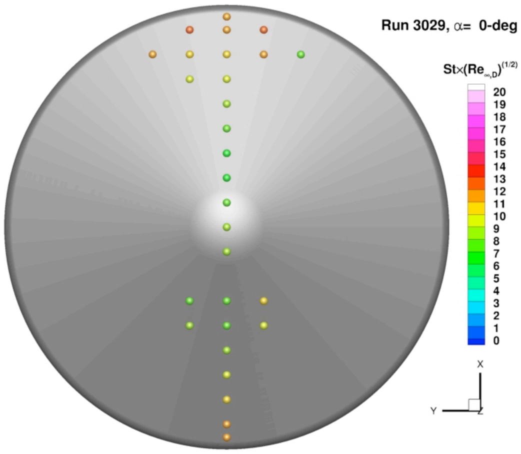
Figure 43. Reynolds number effects on fore/aft-body centerline heating, Mach 10 nozzle, α = 24°.



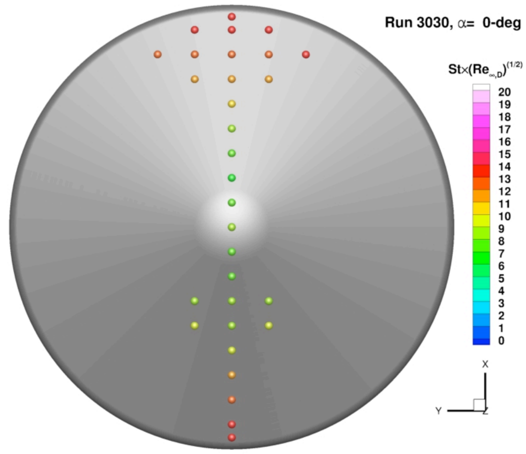
a) Run 3028, $Re_\infty = 4.1\times10^6$/ft



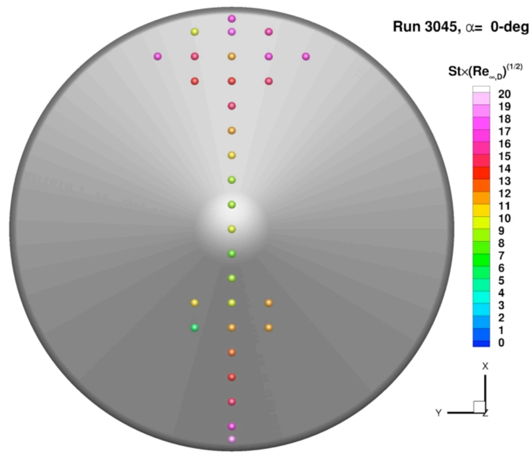
b) Run 3027, $Re_\infty = 8.0\times10^6$/ft



c) Run 3029, $Re_\infty = 15.8\times10^6$/ft



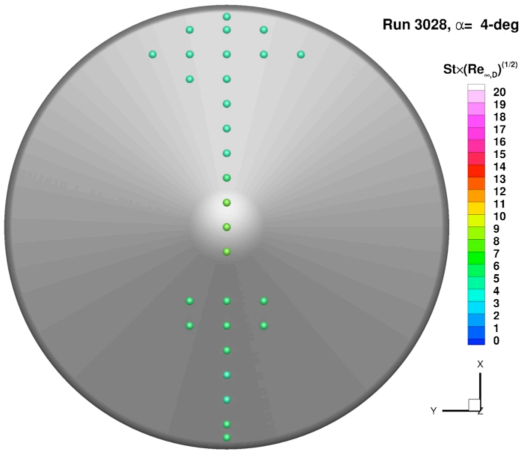
d) Run 3030, $Re_\infty = 21.5\times10^6$/ft



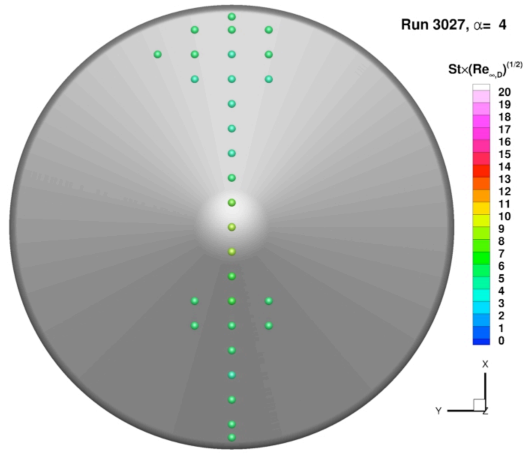
e) $Re_\infty \sim 30\times10^6$/ft not tested

f) Run 3045, $Re_\infty = 45.0\times10^6$/ft

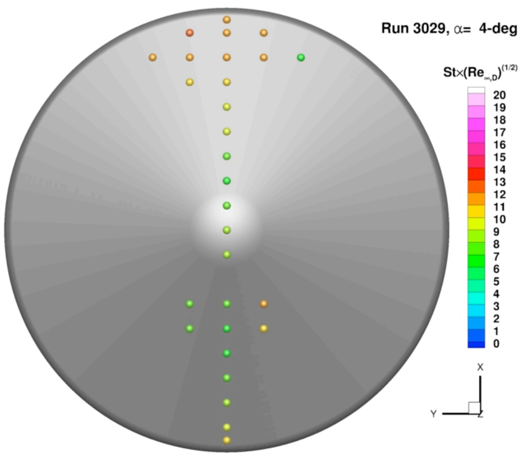
Figure 44. Reynolds number effects on forebody heating, Mach 8 nozzle, α = 0°.



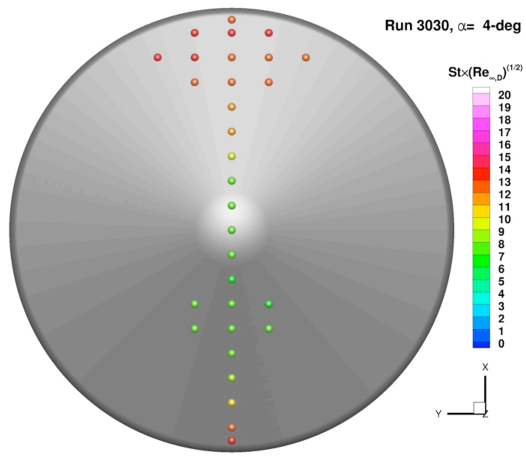
a) Run 3028, $Re_\infty = 4.1\times10^6$/ft



b) Run 3027, $Re_\infty = 8.0\times10^6$/ft



c) Run 3029, $Re_\infty = 15.8\times10^6$/ft

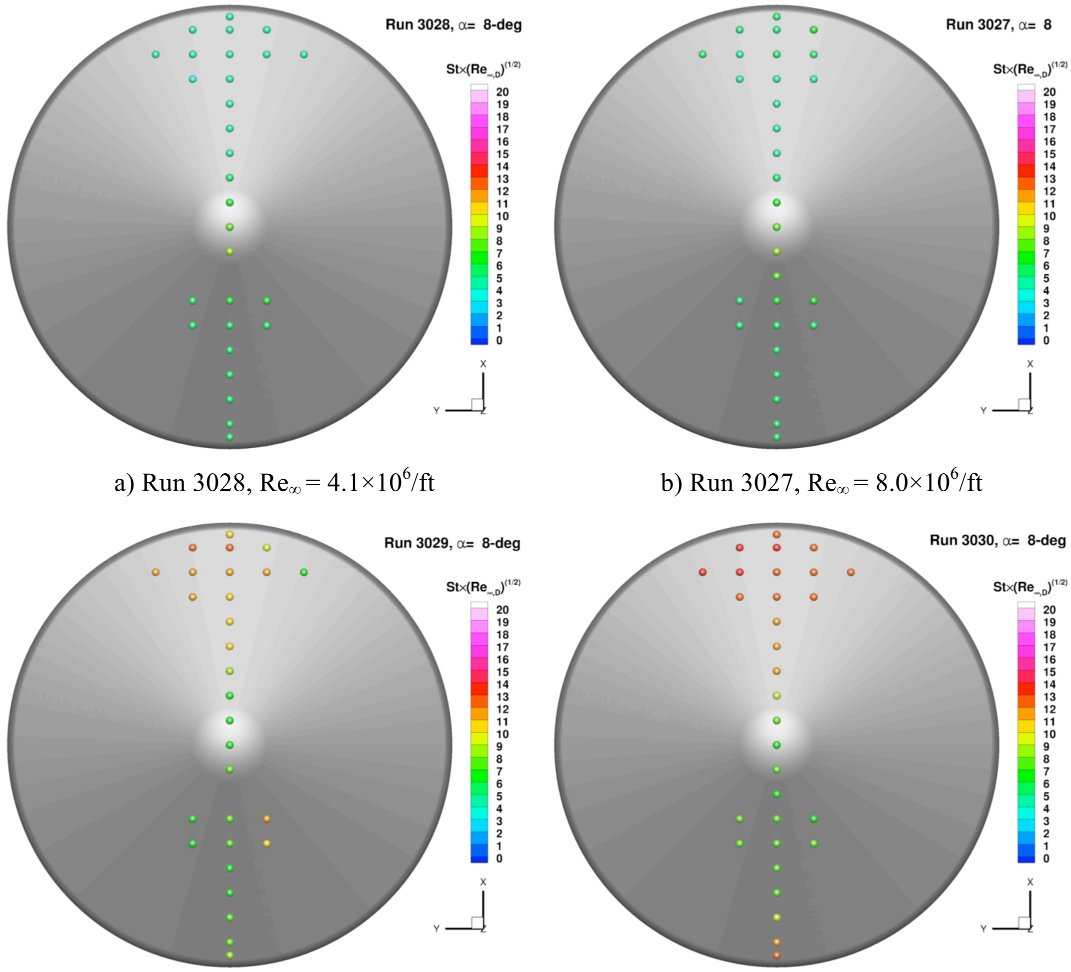


d) Run 3030, $Re_\infty = 21.5\times10^6$/ft

e) $Re_\infty \sim 30\times10^6$/ft not tested

f) $Re_\infty \sim 47\times10^6$/ft not tested

Figure 45. Reynolds number effects on forebody heating, Mach 8 nozzle, α = 4°.



a) Run 3028, $Re_\infty = 4.1\times10^6$/ft

b) Run 3027, $Re_\infty = 8.0\times10^6$/ft

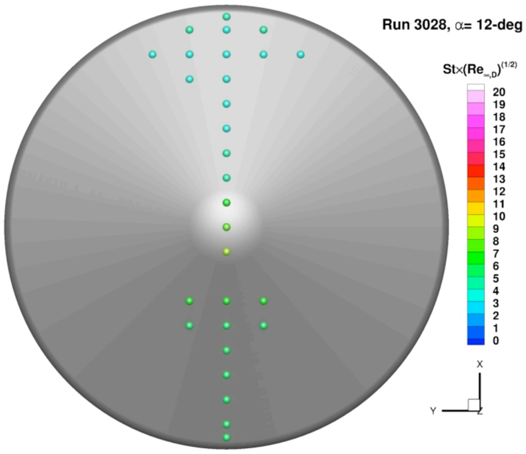
c) Run 3029, $Re_\infty = 15.8\times10^6$/ft

d) Run 3030, $Re_\infty = 21.5\times10^6$/ft

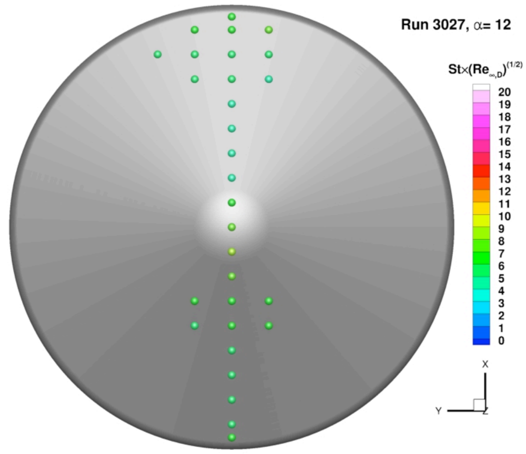
e) $Re_\infty \sim 30\times10^6$/ft not tested

f) $Re_\infty \sim 47\times10^6$/ft not tested

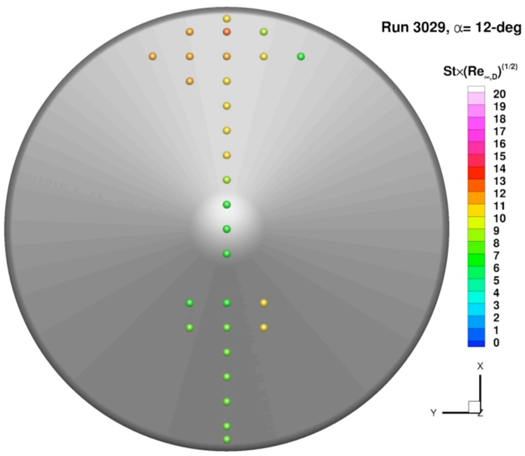
Figure 46. Reynolds number effects on forebody heating, Mach 8 nozzle, α = 8°.



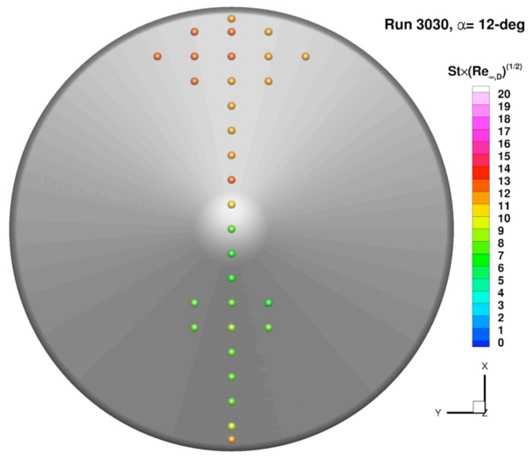
a) Run 3028, $Re_\infty = 4.1\times10^6$/ft



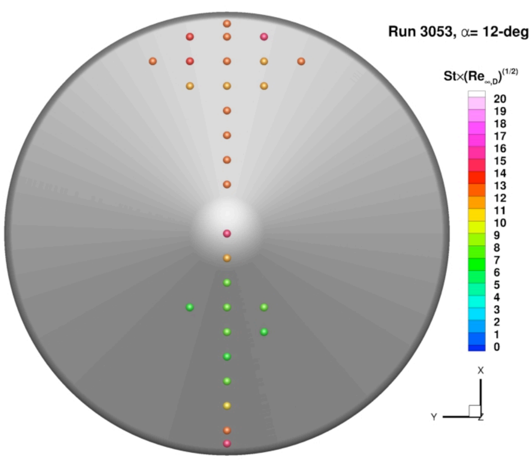
b) Run 3027, $Re_\infty = 8.0\times10^6$/ft



c) Run 3029, $Re_\infty = 15.8\times10^6$/ft



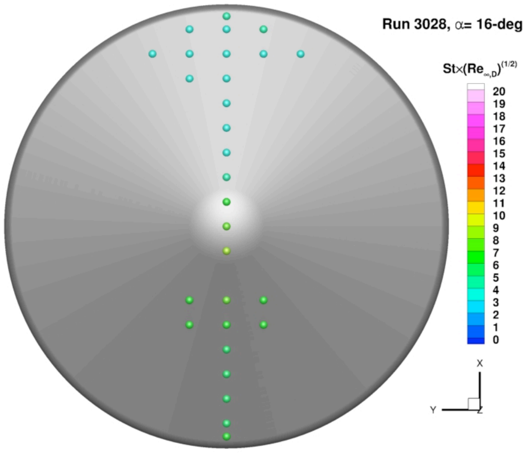
d) Run 3030, $Re_\infty = 21.5\times10^6$/ft



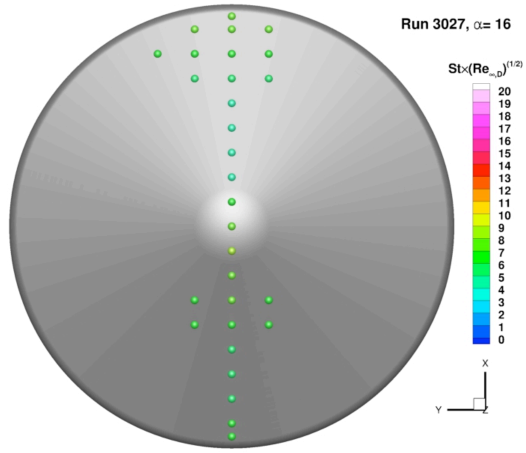
e) Run 3053, $Re_\infty = 30.2\times10^6$/ft

f) $Re_\infty \sim 47\times10^6$/ft not tested

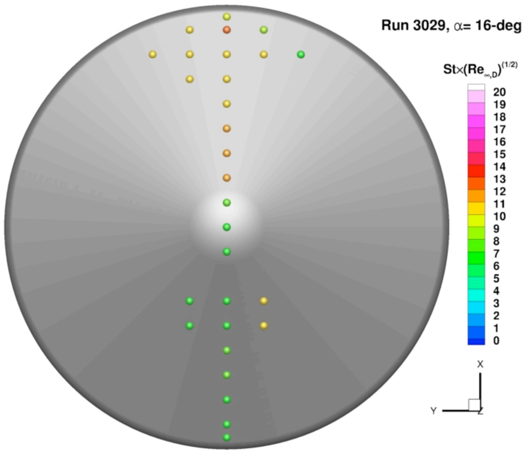
Figure 47. Reynolds number effects on forebody heating, Mach 8 nozzle, α = 12°.



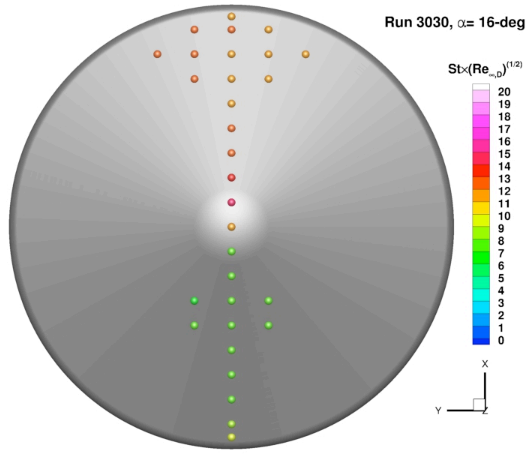
a) Run 3028, $Re_\infty = 4.1\times10^6$/ft



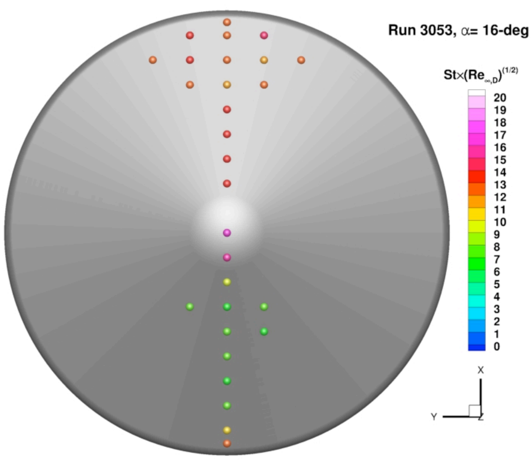
b) Run 3027, $Re_\infty = 8.0\times10^6$/ft



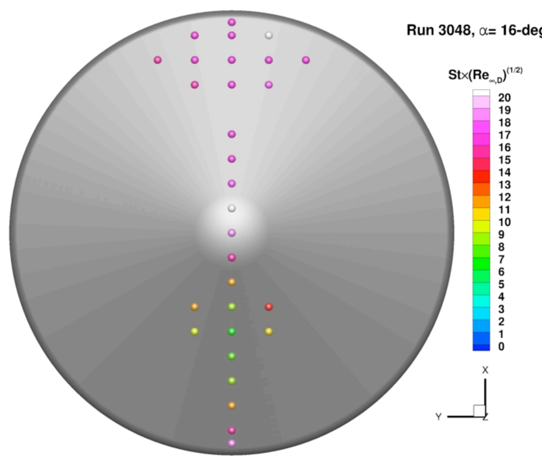
c) Run 3029, $Re_\infty = 15.8\times10^6$/ft



d) Run 3030, $Re_\infty = 21.5\times10^6$/ft

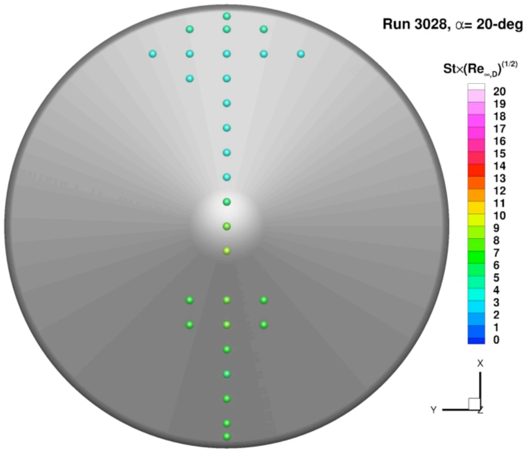


e) Run 3053, $Re_\infty \sim 30.2\times10^6$/ft

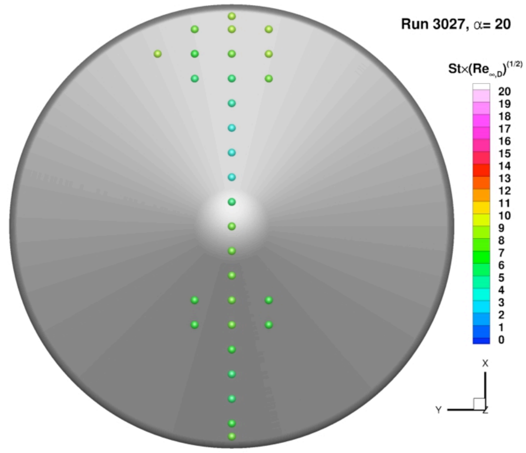


f) $Re_\infty \sim 47\times10^6$/ft not tested

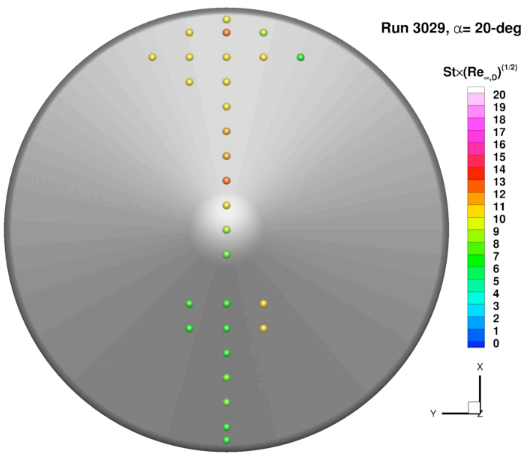
Figure 48. Reynolds number effects on forebody heating, Mach 8 nozzle, α = 16°.



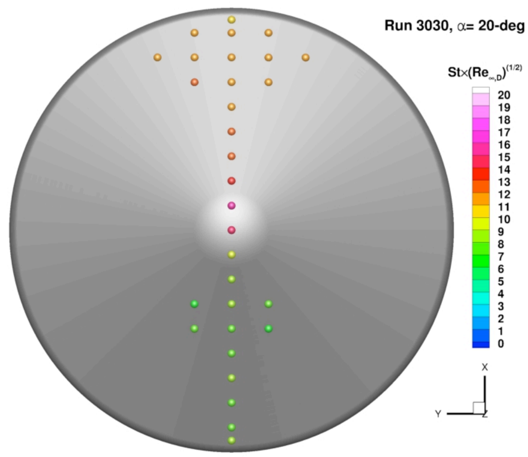
a) Run 3028, $Re_\infty = 4.1\times10^6$/ft



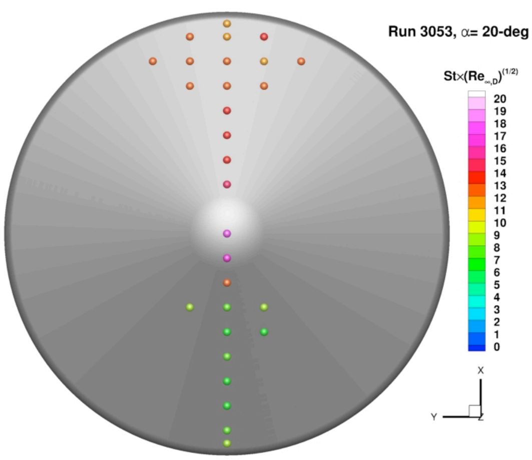
b) Run 3027, $Re_\infty = 8.0\times10^6$/ft



c) Run 3029, $Re_\infty = 15.8\times10^6$/ft



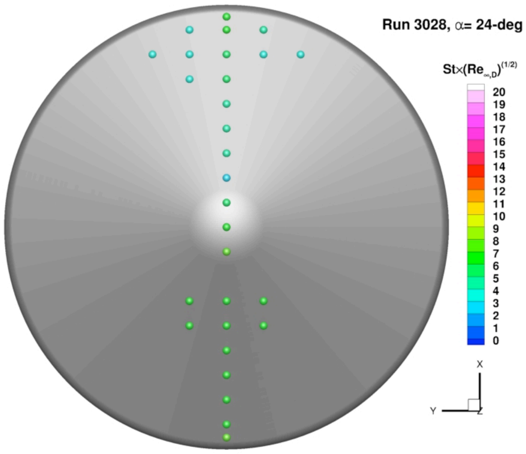
d) Run 3030, $Re_\infty = 21.5\times10^6$/ft



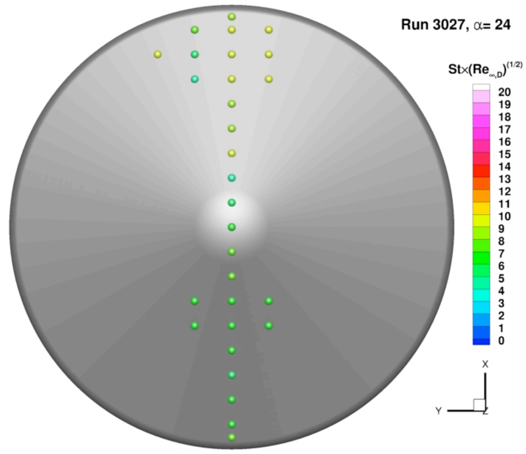
e) Run 3053, $Re_\infty = 30.2\times10^6$/ft

f) $Re_\infty \sim 47\times10^6$/ft not tested

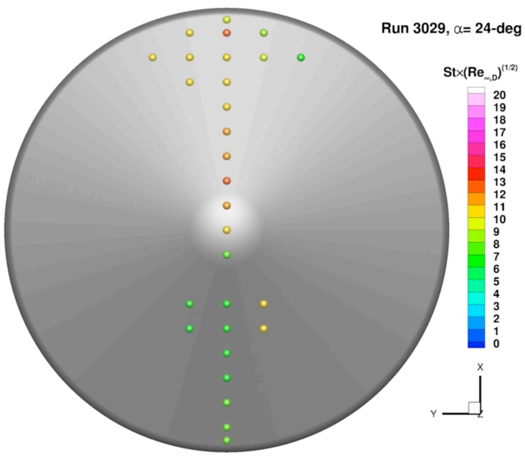
Figure 49. Reynolds number effects on forebody heating, Mach 8 nozzle, α = 20°.



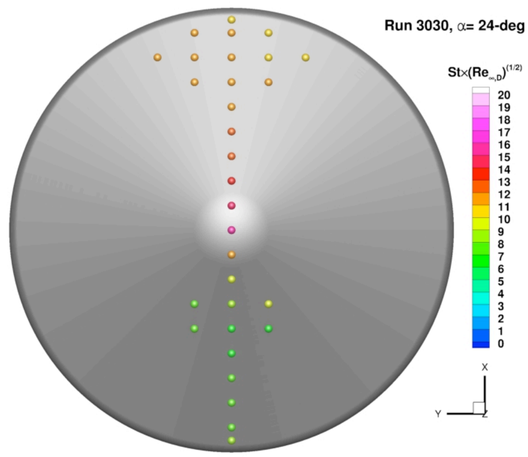
a) Run 3028, $Re_\infty = 4.1\times10^6$/ft



b) Run 3027, $Re_\infty = 8.0\times10^6$/ft



c) Run 3029, $Re_\infty = 15.8\times10^6$/ft

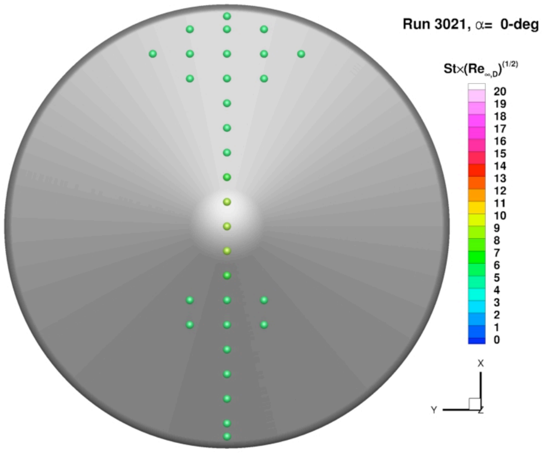


d) Run 3030, $Re_\infty = 21.5\times10^6$/ft

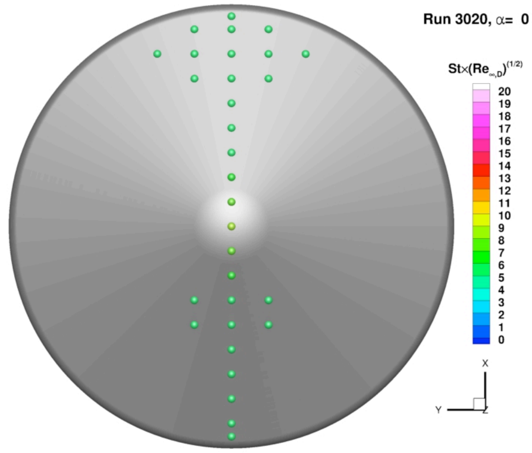
e) $Re_\infty \sim 30\times10^6$/ft not tested

f) $Re_\infty \sim 47\times10^6$/ft not tested

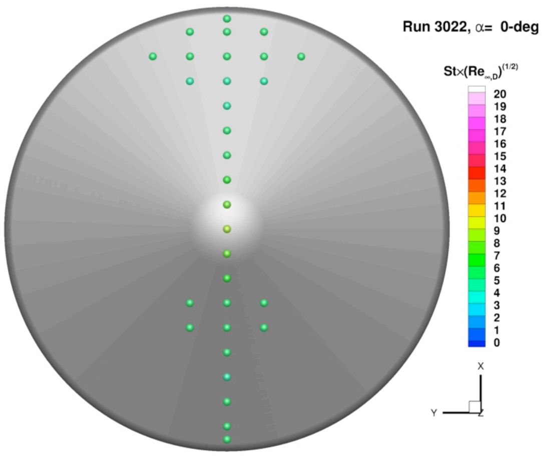
Figure 50. Reynolds number effects on forebody heating, Mach 8 nozzle, α = 24°.



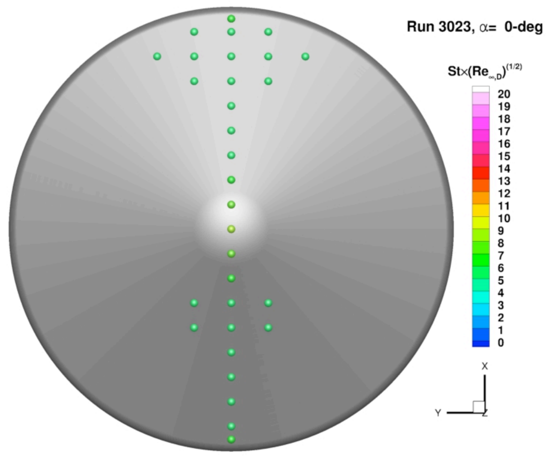
a) Run 3021, $Re_\infty = 1.2\times10^6$/ft



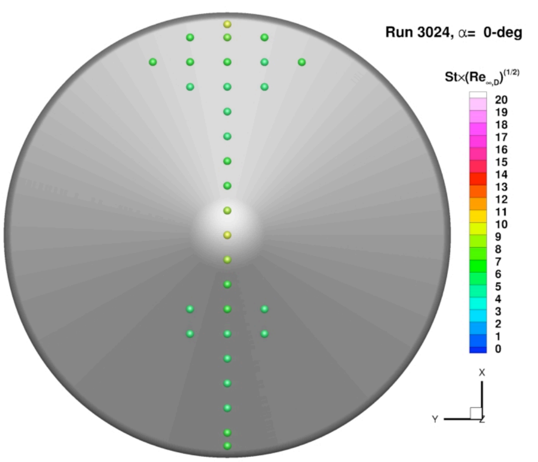
b) Run 3020, $Re_\infty = 1.9\times10^6$/ft



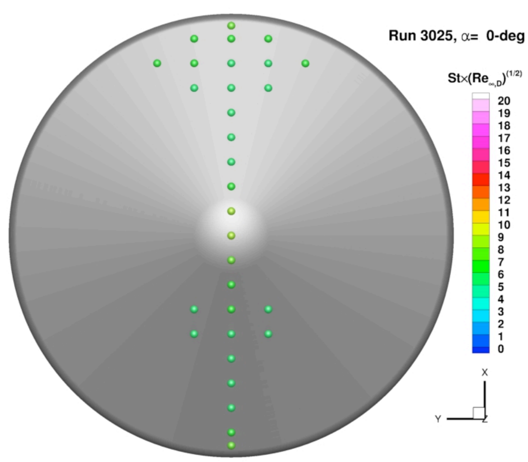
c) Run 3022, $Re_\infty = 4.6\times10^6$/ft



d) Run 3023, $Re_\infty = 8.5\times10^6$/ft

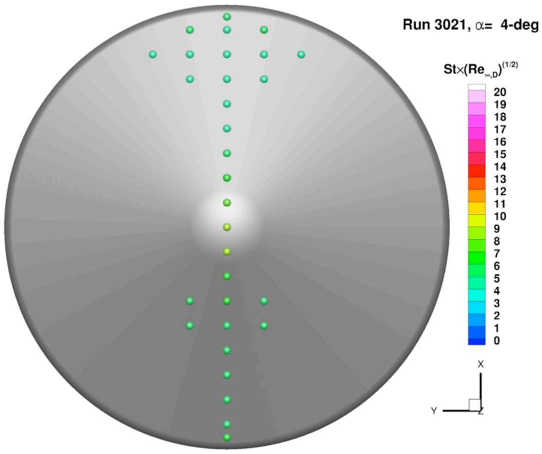


e) Run 3024, $Re_\infty = 14.4\times10^6$/ft

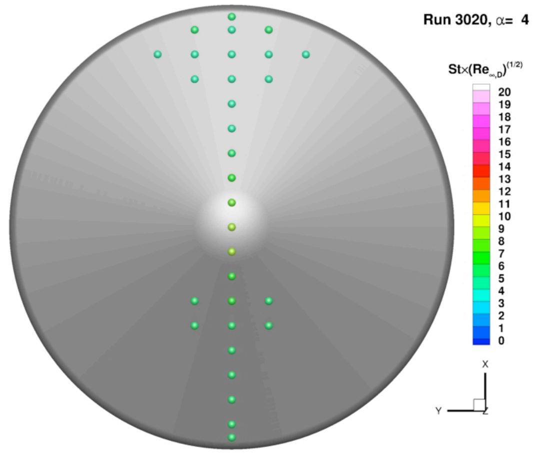


f) Run 3025, $Re_\infty = 19.2\times10^6$/ft

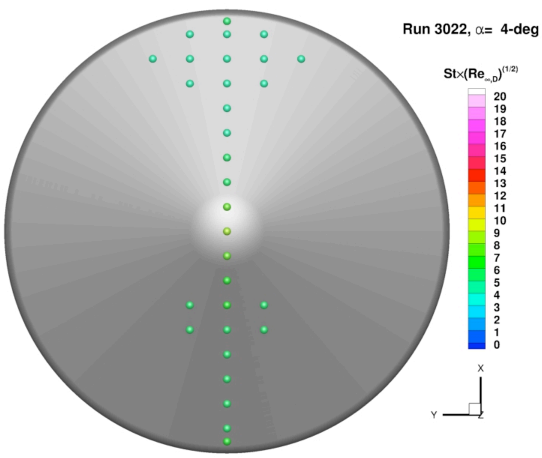
Figure 51. Reynolds number effects on forebody heating, Mach 10 nozzle, $\alpha = 0°$.



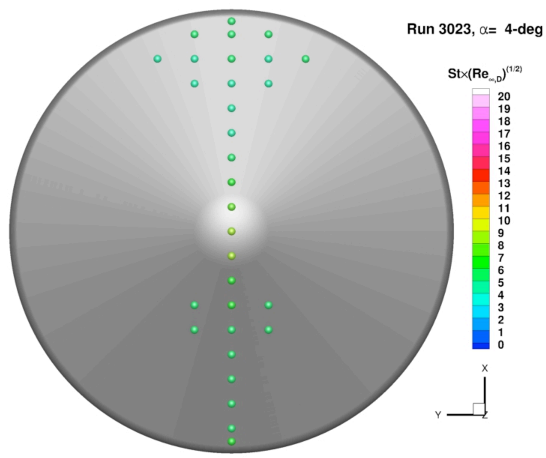
a) Run 3021, $Re_{\infty} = 1.2\times10^{6}$/ft



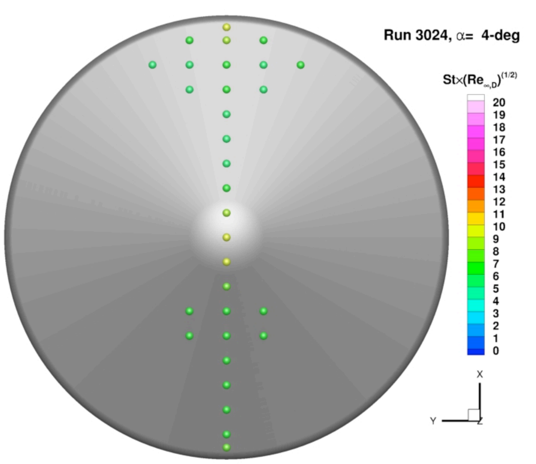
b) Run 3020, $Re_{\infty} = 1.9\times10^{6}$/ft



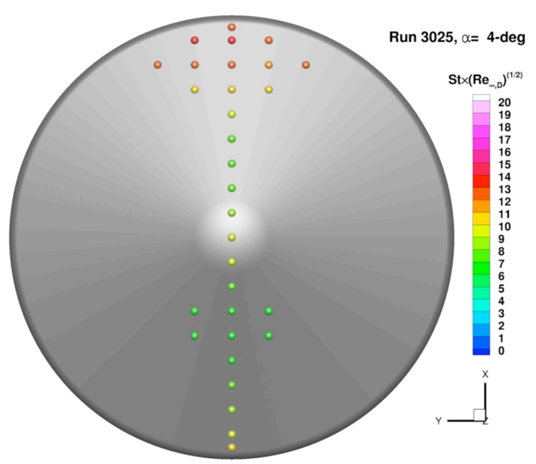
c) Run 3022, $Re_{\infty} = 4.6\times10^{6}$/ft



d) Run 3023, $Re_{\infty} = 8.5\times10^{6}$/ft

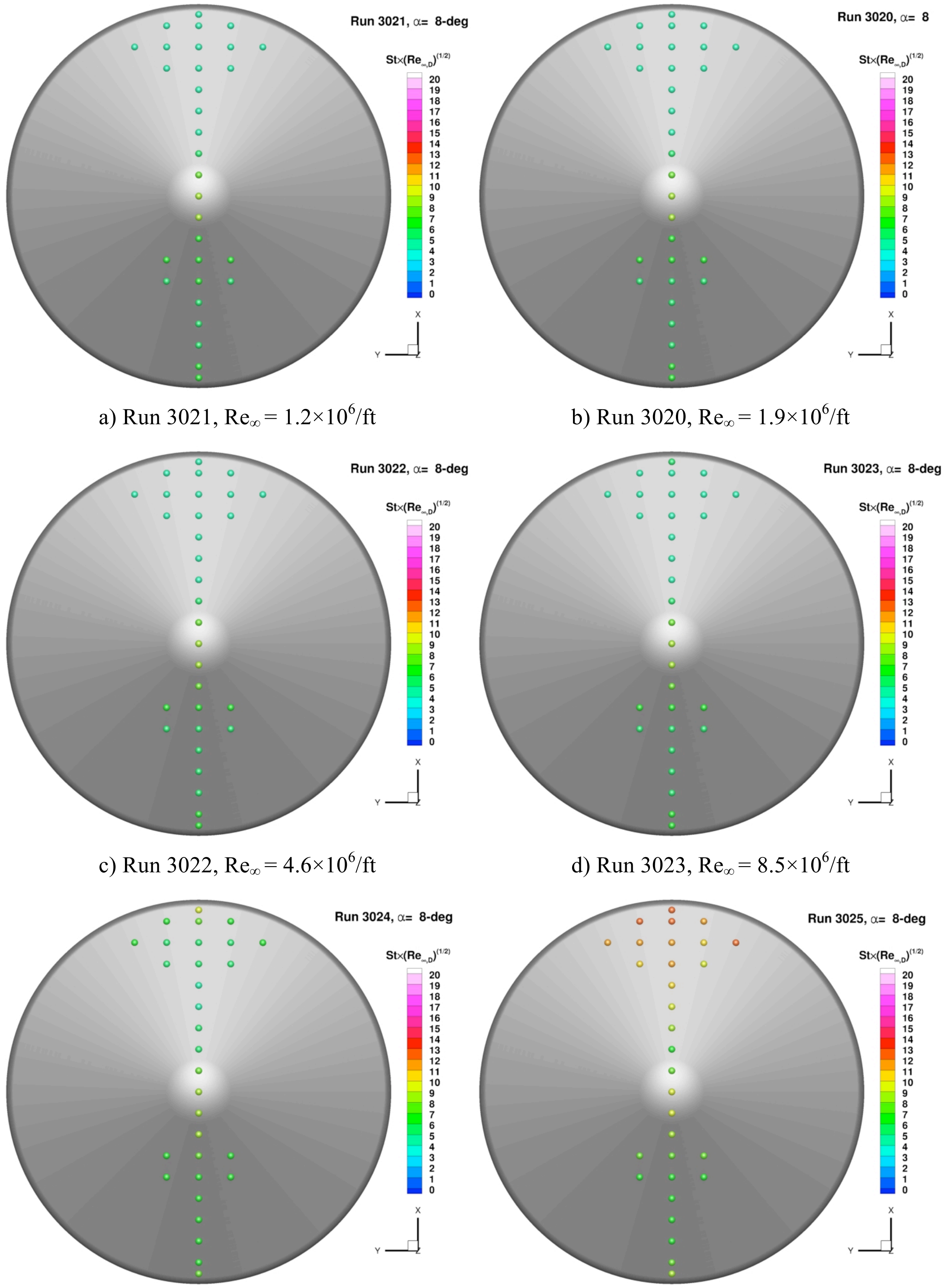


e) Run 3024, $Re_{\infty} = 14.4\times10^{6}$/ft



f) Run 3025, $Re_{\infty} = 19.2\times10^{6}$/ft

Figure 52. Reynolds number effects on forebody heating, Mach 10 nozzle, α = 4°.



a) Run 3021, $Re_\infty = 1.2\times10^6$/ft

b) Run 3020, $Re_\infty = 1.9\times10^6$/ft

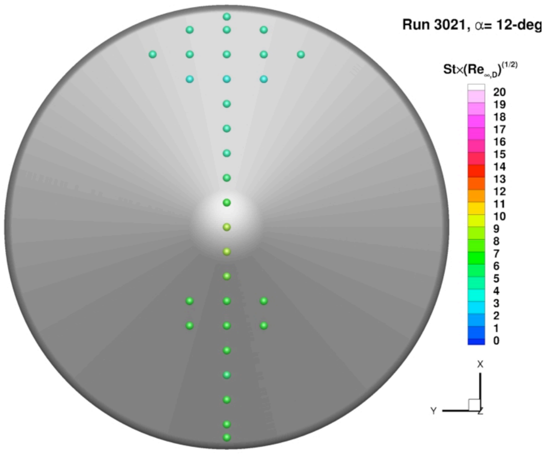
c) Run 3022, $Re_\infty = 4.6\times10^6$/ft

d) Run 3023, $Re_\infty = 8.5\times10^6$/ft

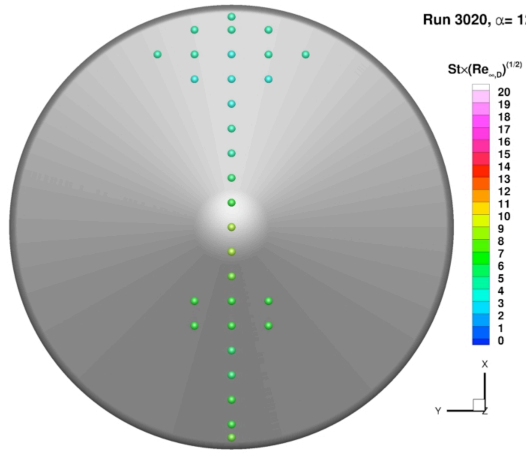
e) Run 3024, $Re_\infty = 14.4\times10^6$/ft

f) Run 3025, $Re_\infty = 19.2\times10^6$/ft

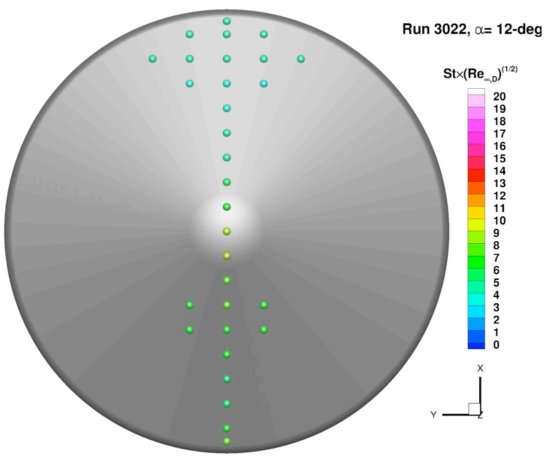
Figure 53. Reynolds number effects on forebody heating, Mach 10 nozzle, α = 8°.



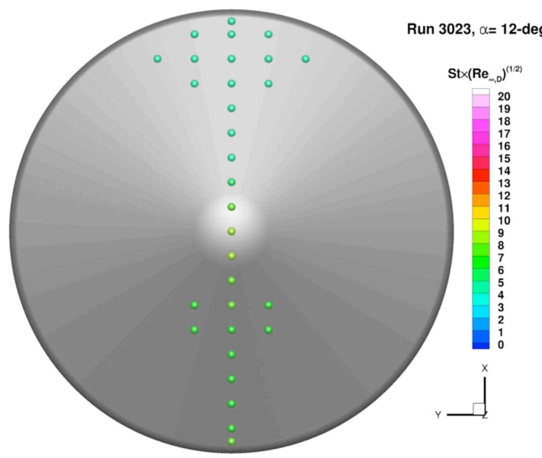
a) Run 3021, $Re_\infty = 1.2\times10^6$/ft



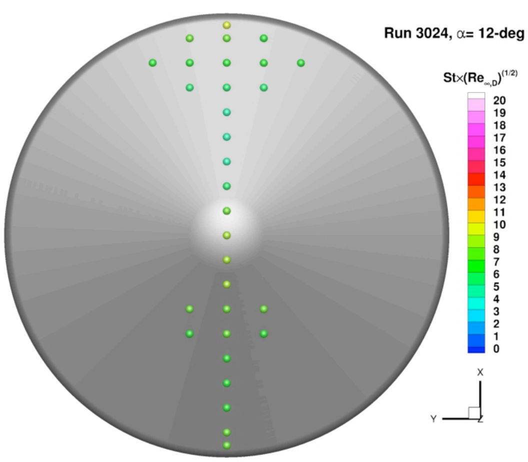
b) Run 3020, $Re_\infty = 1.9\times10^6$/ft



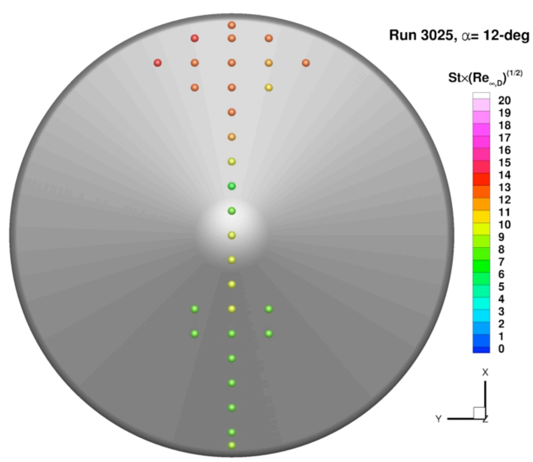
c) Run 3022, $Re_\infty = 4.6\times10^6$/ft



d) Run 3023, $Re_\infty = 8.5\times10^6$/ft

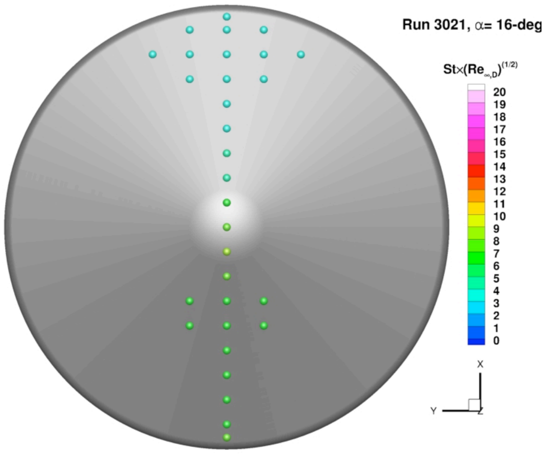


e) Run 3024, $Re_\infty = 14.4\times10^6$/ft

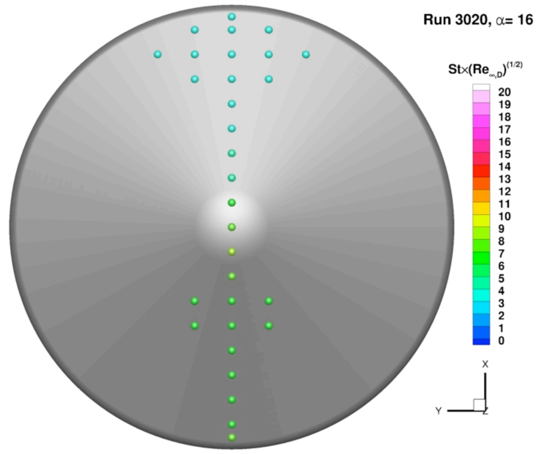


f) Run 3025, $Re_\infty = 19.2\times10^6$/ft

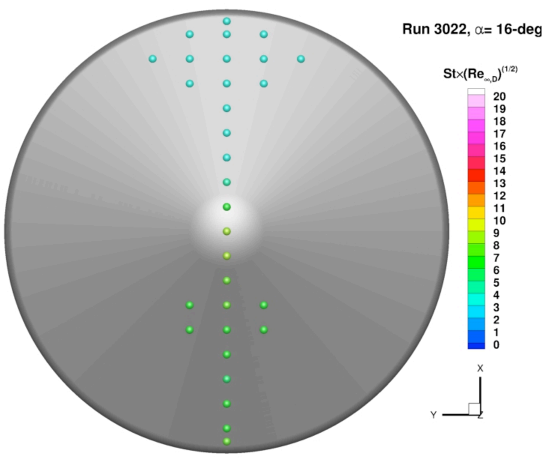
Figure 54. Reynolds number effects on forebody heating, Mach 10 nozzle, α = 12°.



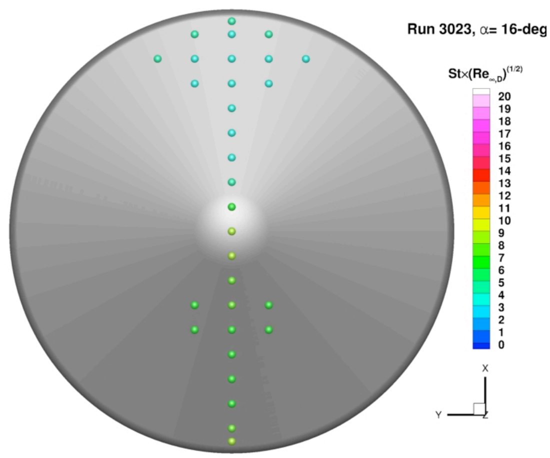
a) Run 3021, $Re_\infty = 1.2\times10^6$/ft



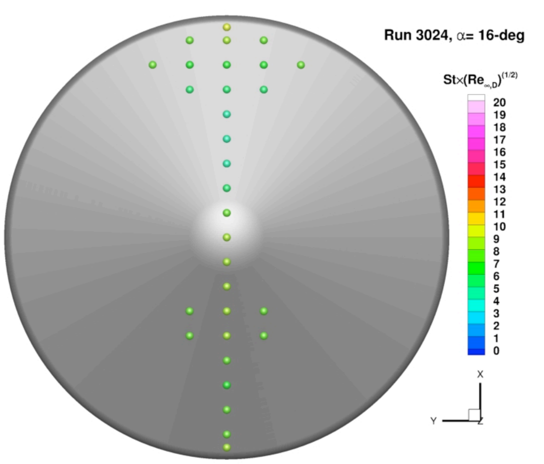
b) Run 3020, $Re_\infty = 1.9\times10^6$/ft



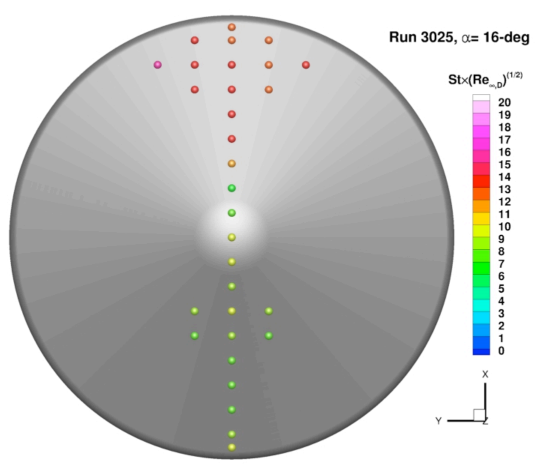
c) Run 3022, $Re_\infty = 4.6\times10^6$/ft



d) Run 3023, $Re_\infty = 8.5\times10^6$/ft

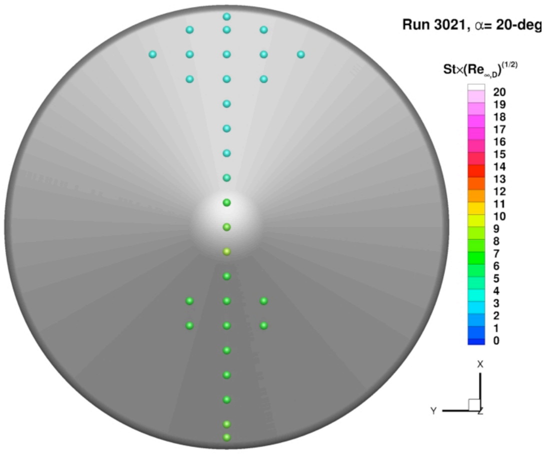


e) Run 3024, $Re_\infty = 14.4\times10^6$/ft

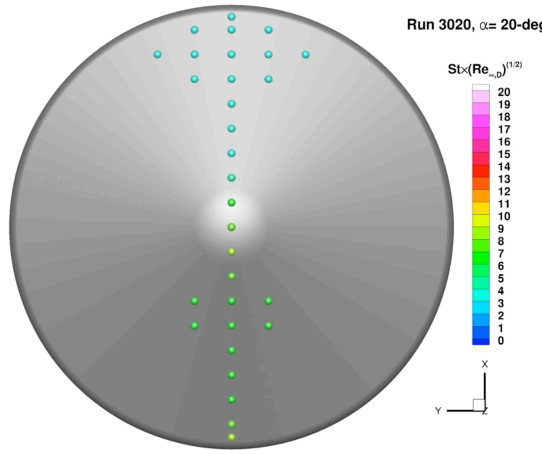


f) Run 3025, $Re_\infty = 19.2\times10^6$/ft

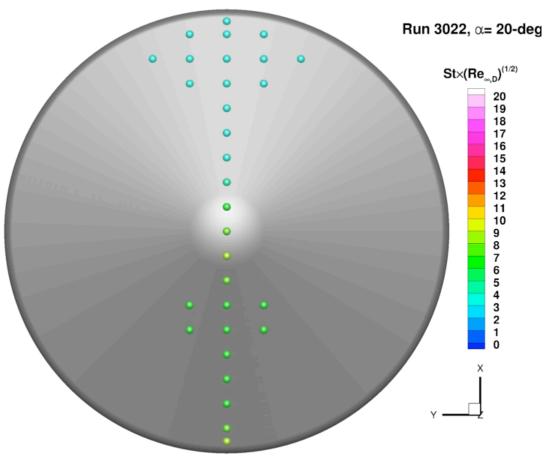
Figure 55. Reynolds number effects on forebody heating, Mach 10 nozzle, α = 16°.



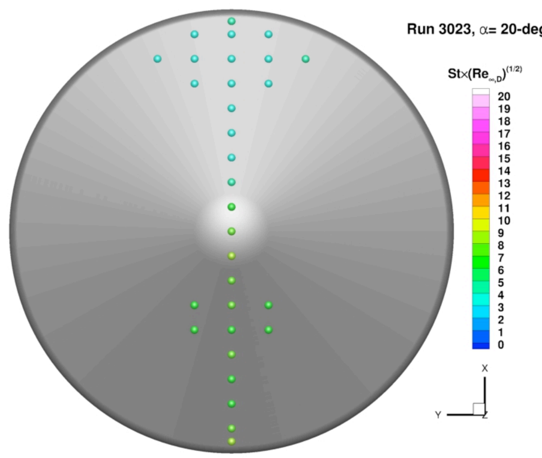
a) Run 3021, $Re_\infty = 1.2\times10^6$/ft



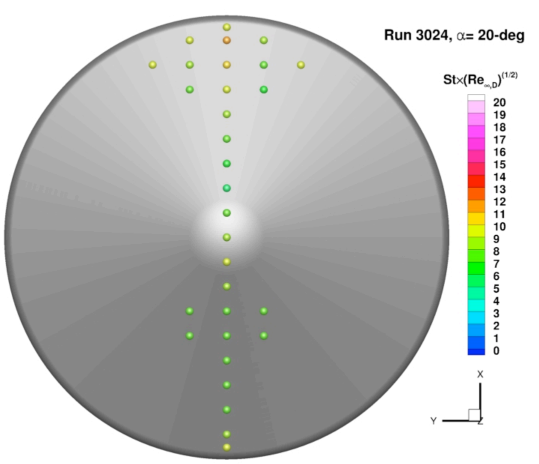
b) Run 3020, $Re_\infty = 1.9\times10^6$/ft



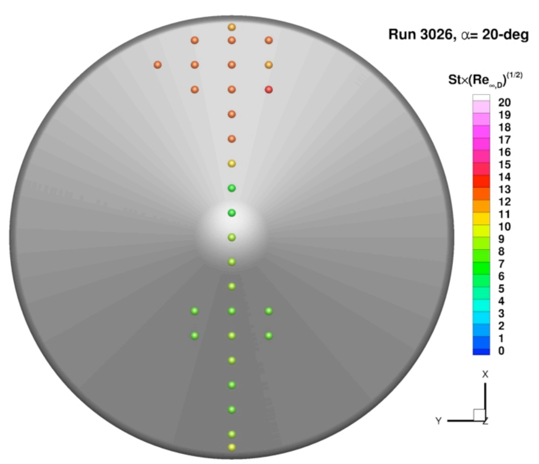
c) Run 3022, $Re_\infty = 4.6\times10^6$/ft



d) Run 3023, $Re_\infty = 8.5\times10^6$/ft

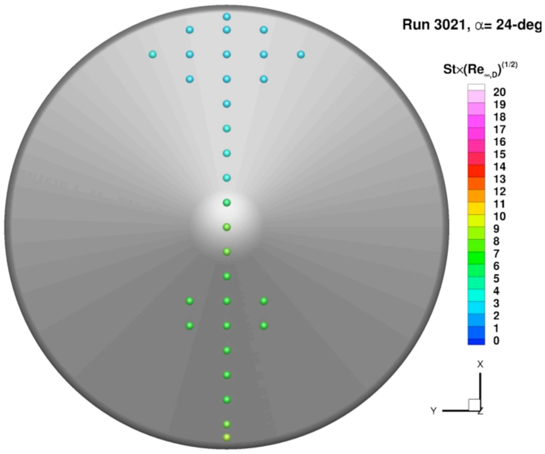


e) Run 3024, $Re_\infty = 14.4\times10^6$/ft

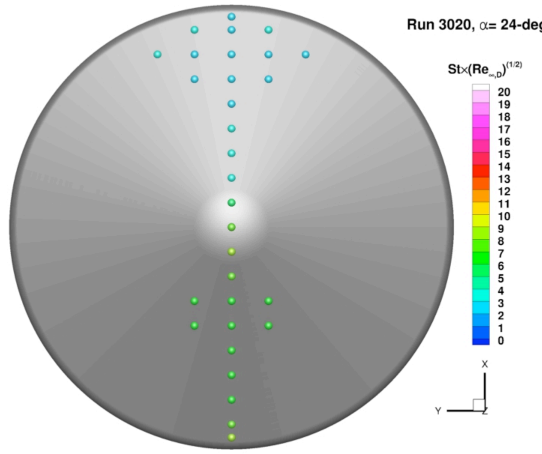


f) Run 3025, $Re_\infty = 19.2\times10^6$/ft

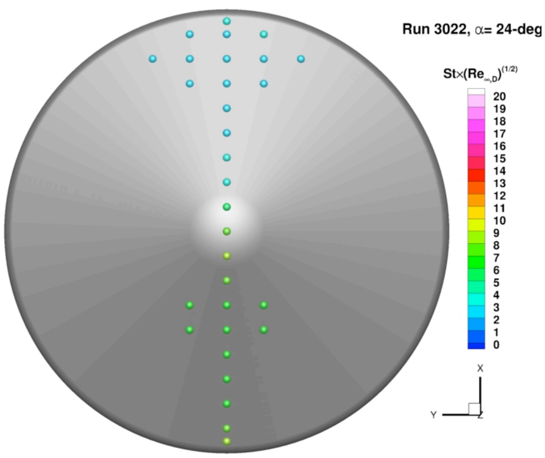
Figure 56. Reynolds number effects on forebody heating, Mach 10 nozzle, α = 20°.



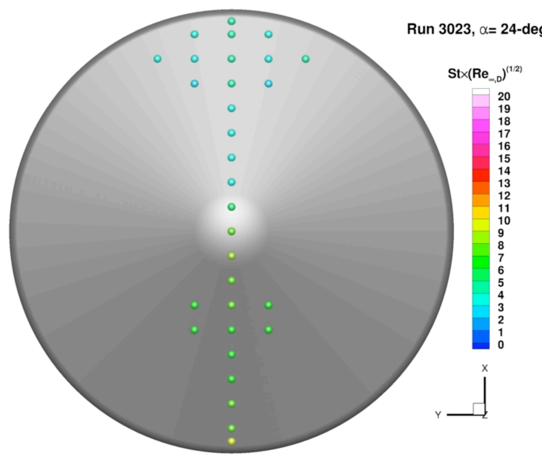
a) Run 3021, $Re_{\infty} = 1.2\times10^{6}$/ft



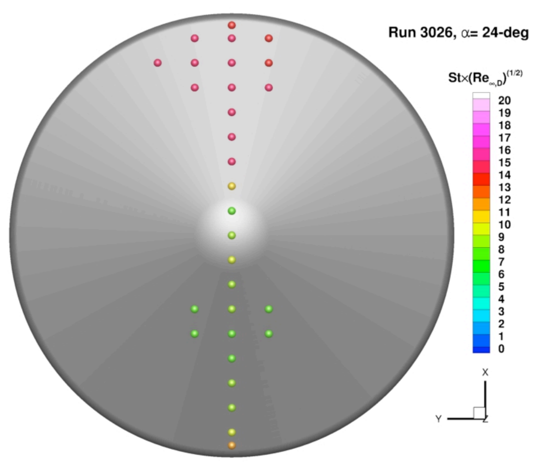
b) Run 3020, $Re_{\infty} = 1.9\times10^{6}$/ft



c) Run 3022, $Re_{\infty} = 4.6\times10^{6}$/ft



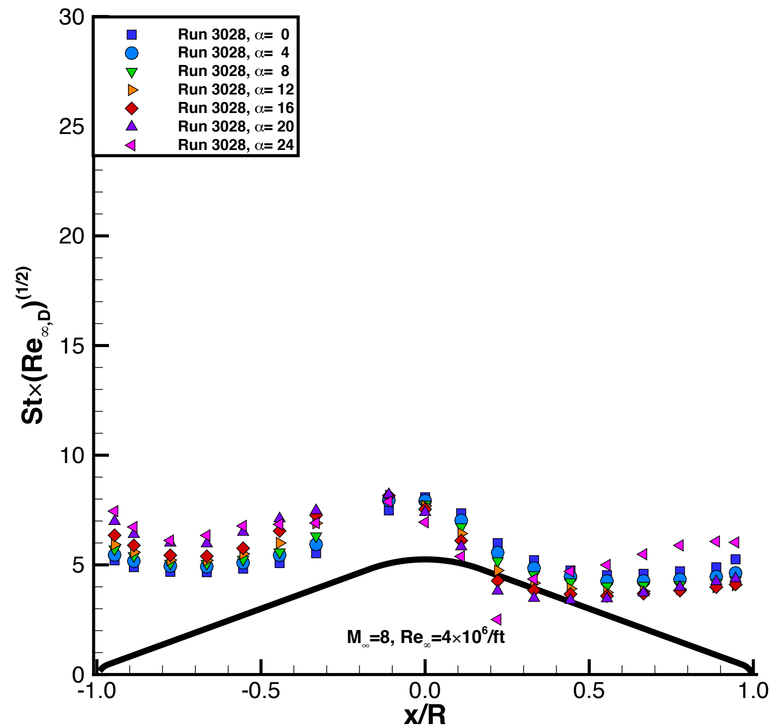
d) Run 3023, $Re_{\infty} = 8.5\times10^{6}$/ft



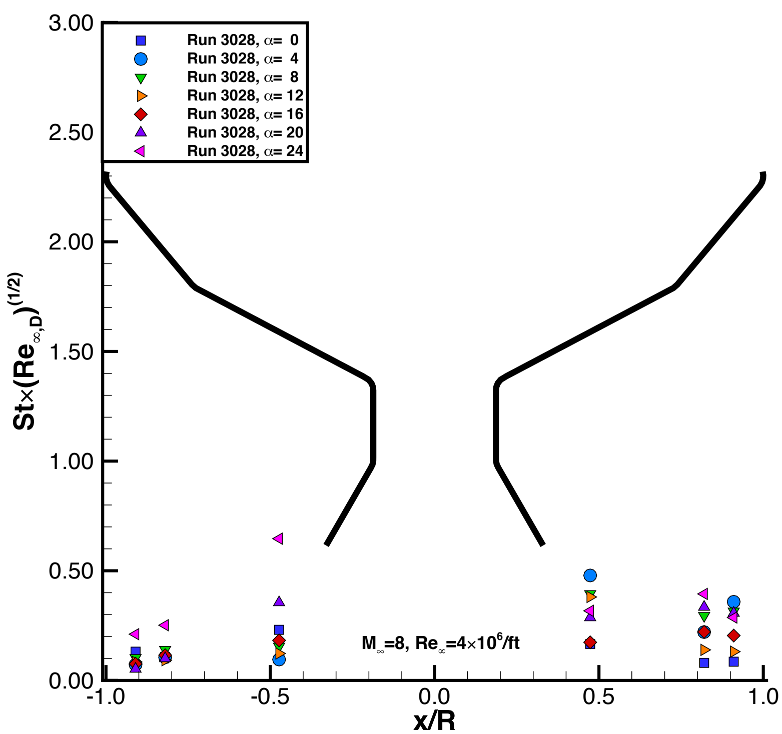
e) $Re_{\infty} = 14.4\times10^{6}$/ft not tested

f) Run 3026, $Re_{\infty} = 18.5\times10^{6}$/ft

Figure 57. Reynolds number effects on forebody heating, Mach 10 nozzle, α = 24°.

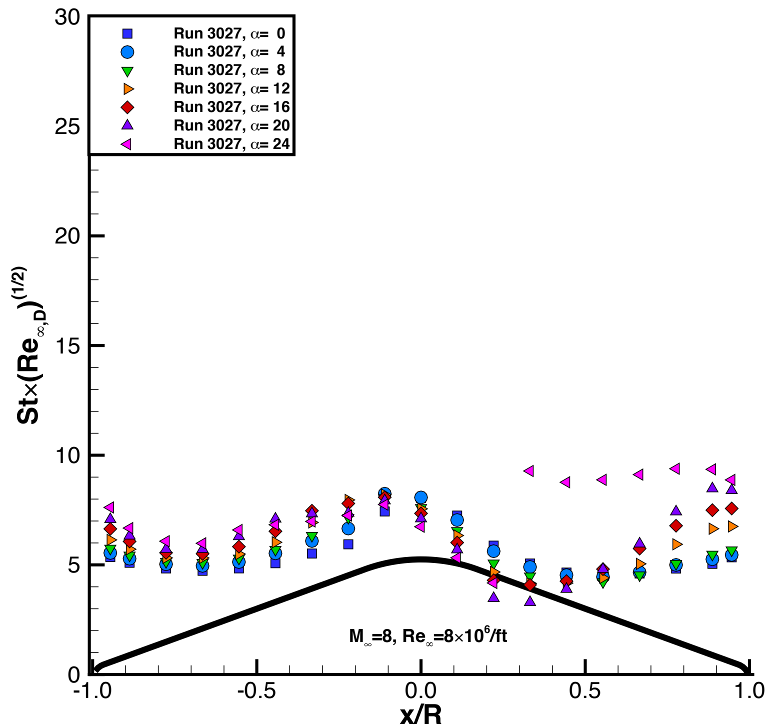


a) Forebody

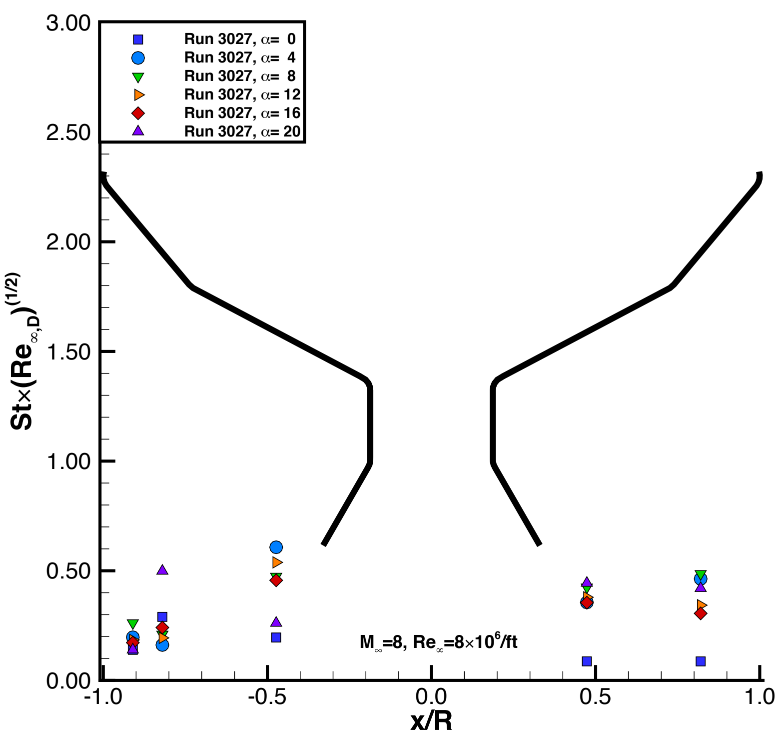


b) Aftbody

Figure 58. Angle-of-attack effects on fore/aft-body centerline heating, Mach 8 nozzle, $Re_{\infty,AV} = 4\times10^6$/ft.

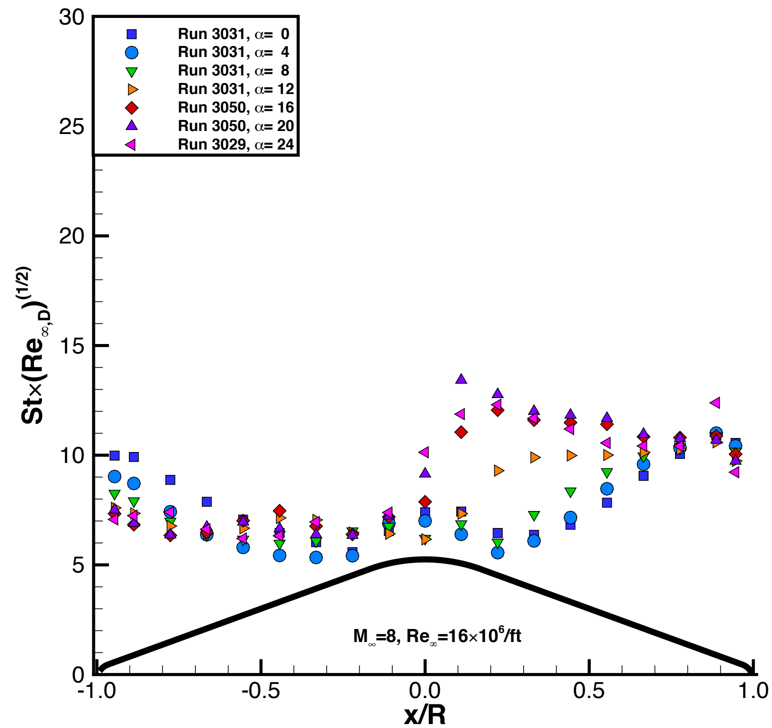


a) Forebody

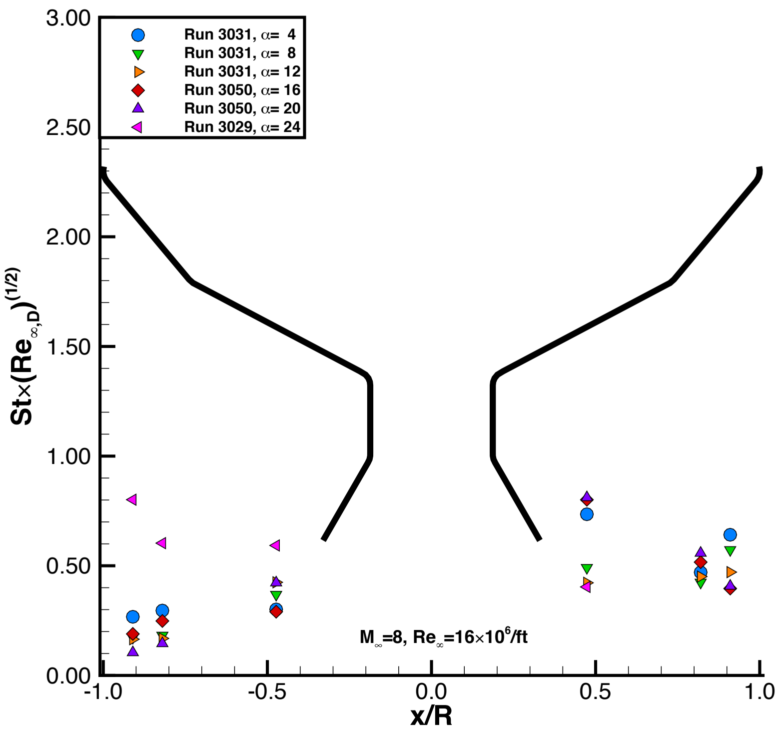


b) Aftbody

Figure 59. Angle-of-attack effects on fore/aft-body centerline heating, Mach 8 nozzle, $Re_{\infty,AV} = 8\times10^6$/ft.

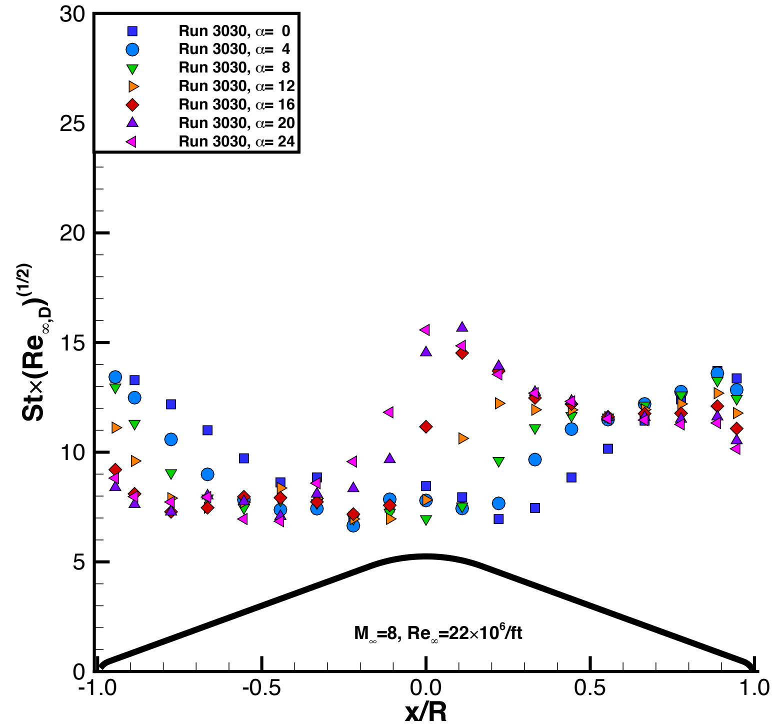


a) Forebody

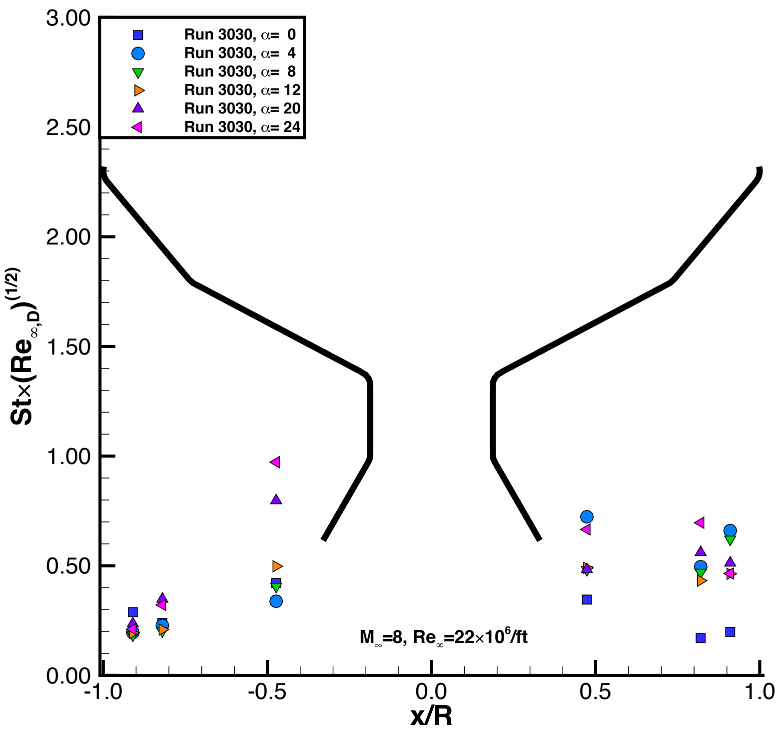


b) Aftbody

Figure 60. Angle-of-attack effects on fore/aft-body centerline heating, Mach 8 nozzle, $Re_{\infty,AV} = 16\times10^6$/ft.

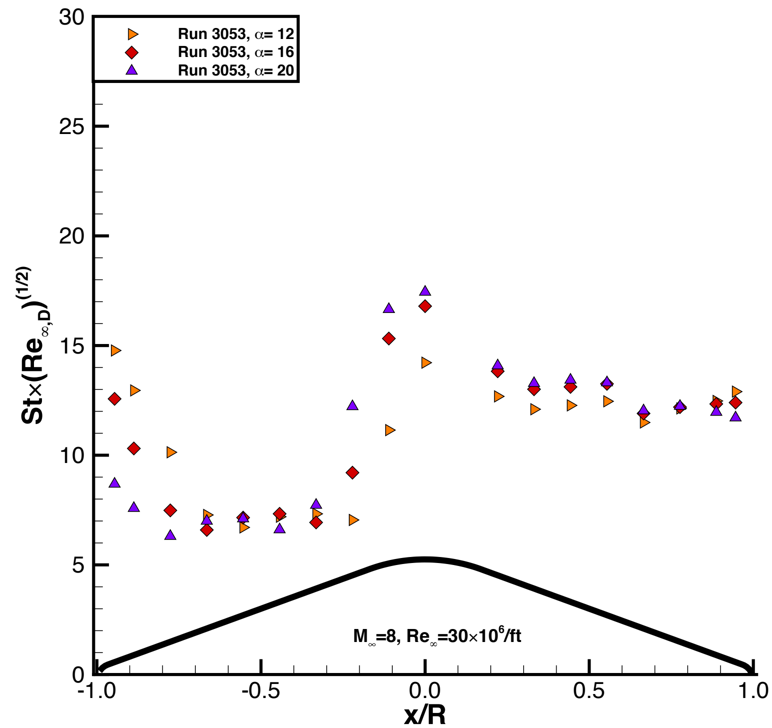


a) Forebody

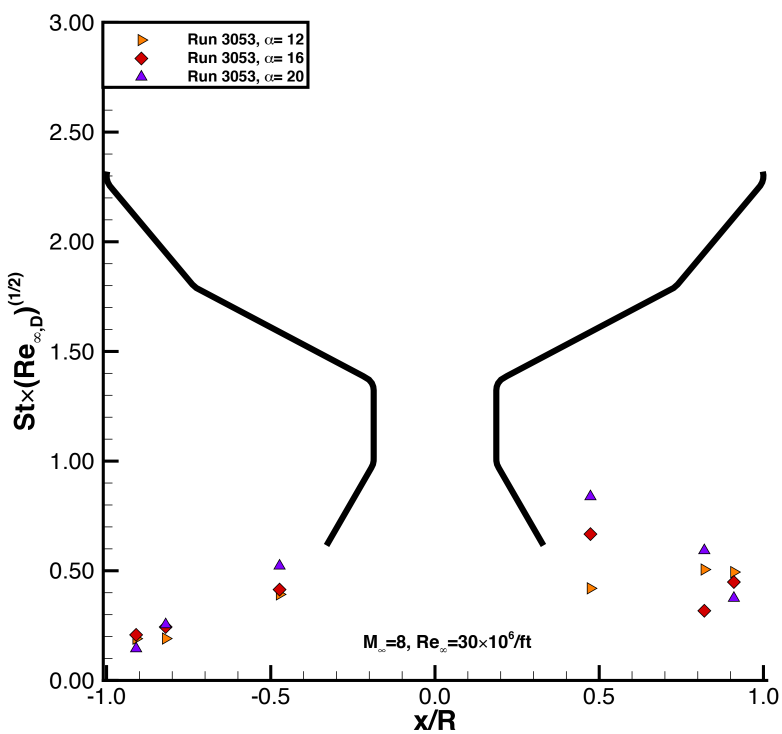


b) Aftbody

Figure 61. Angle-of-attack effects on fore/aft-body centerline heating, Mach 8 nozzle, $Re_{\infty,AV} = 22\times10^6$/ft.

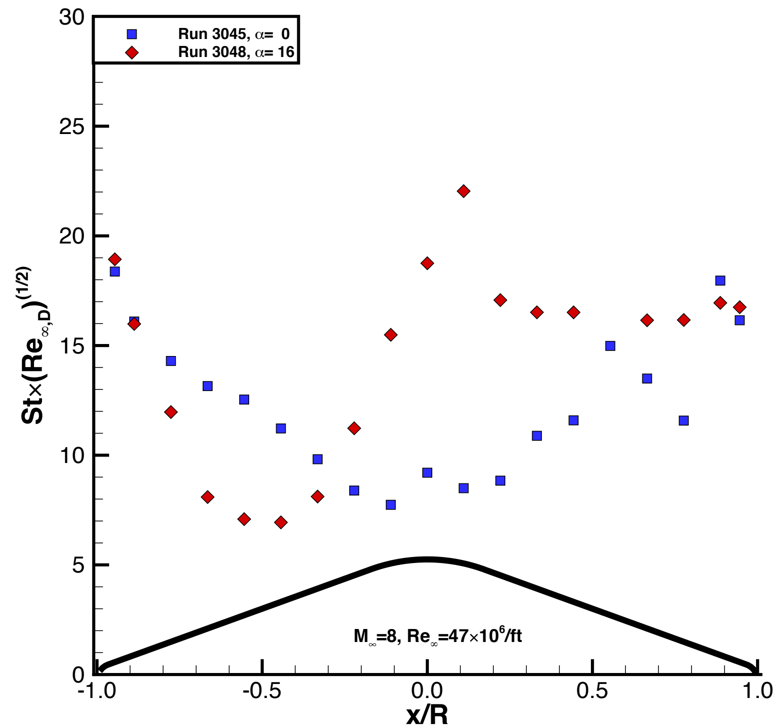


a) Forebody

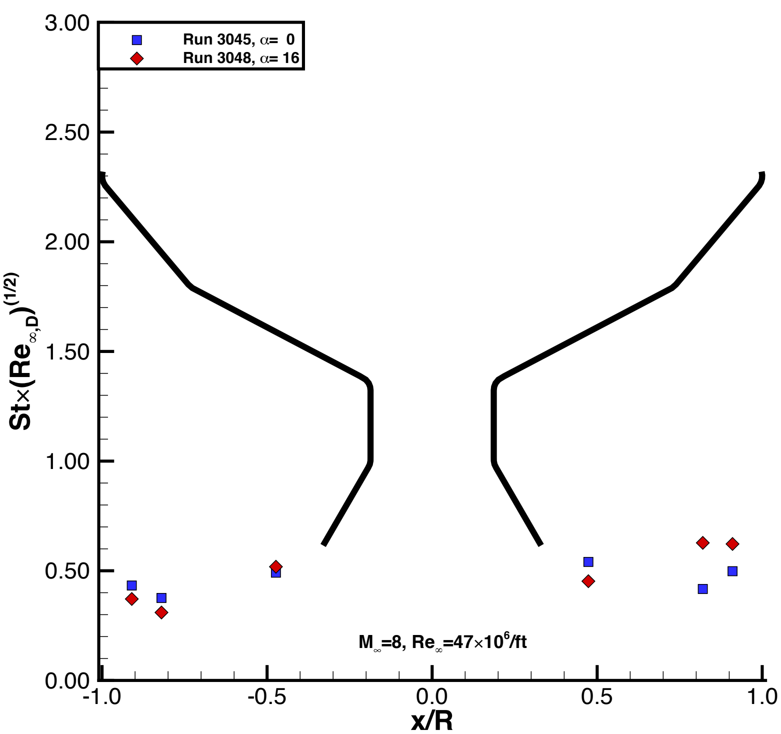


b) Aftbody

Figure 62. Angle-of-attack effects on fore/aft-body centerline heating, Mach 8 nozzle, $Re_{\infty,AV} = 30{\times}10^6$/ft.

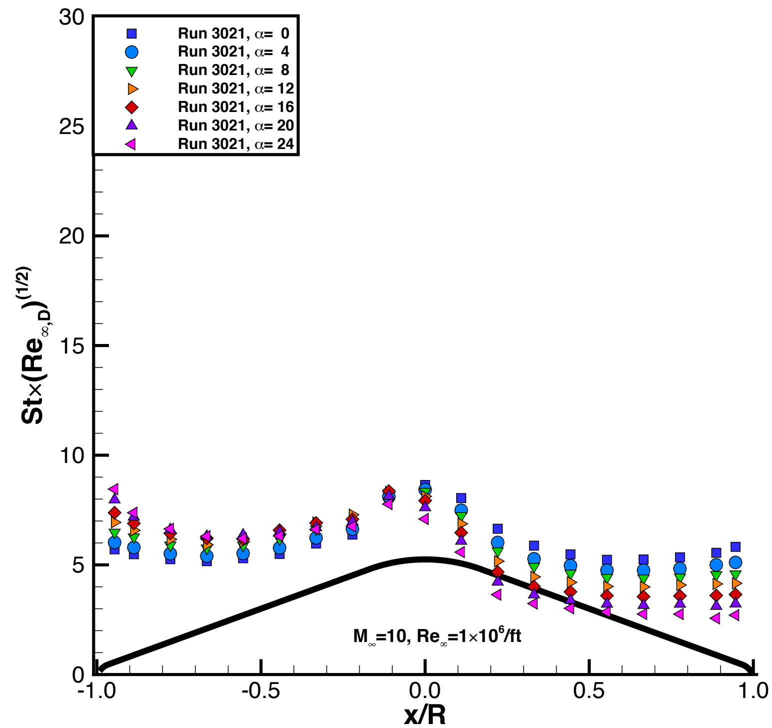


a) Forebody

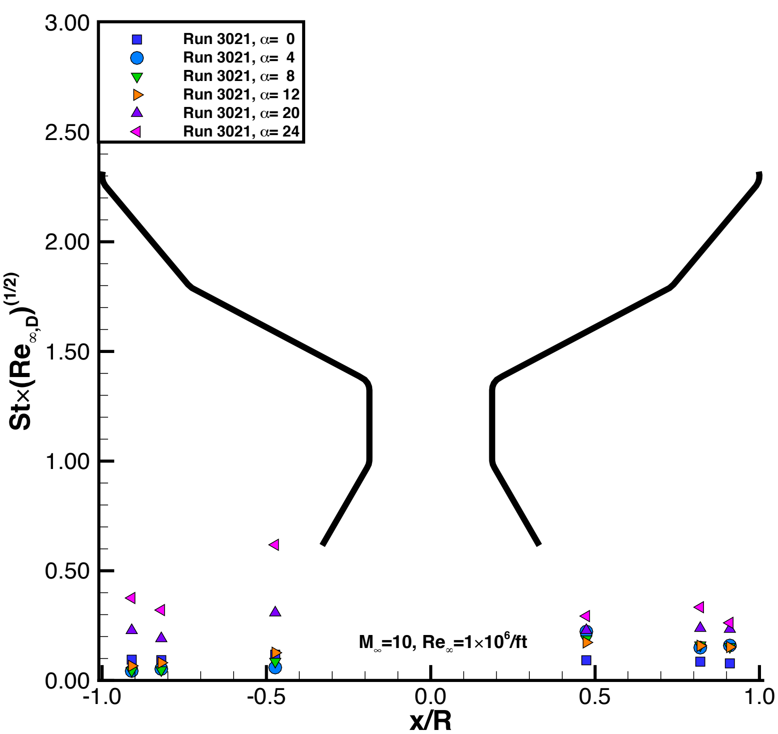


b) Aftbody

Figure 63. Angle-of-attack effects on fore/aft-body centerline heating, Mach 8 nozzle, $Re_{\infty,AV} = 47\times10^6$/ft.

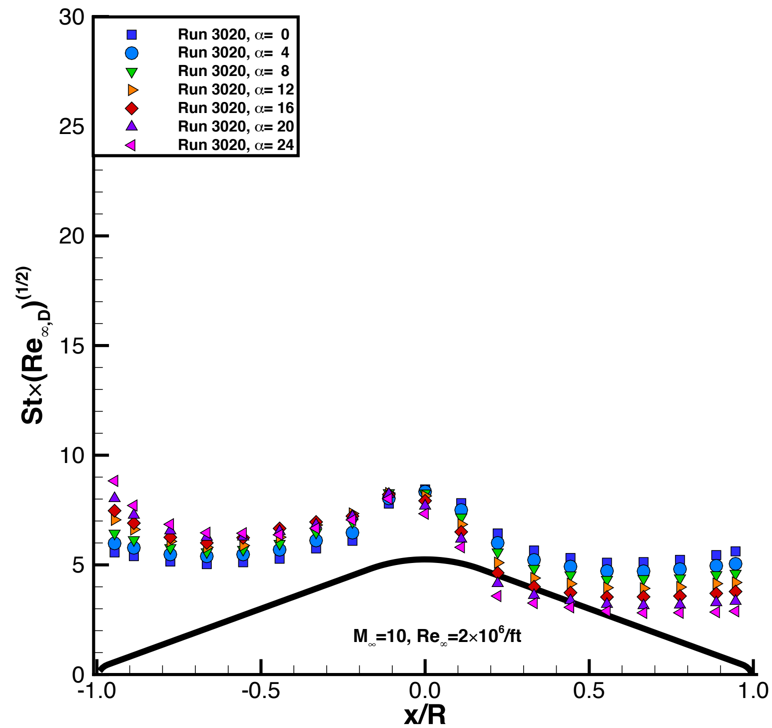


a) Forebody

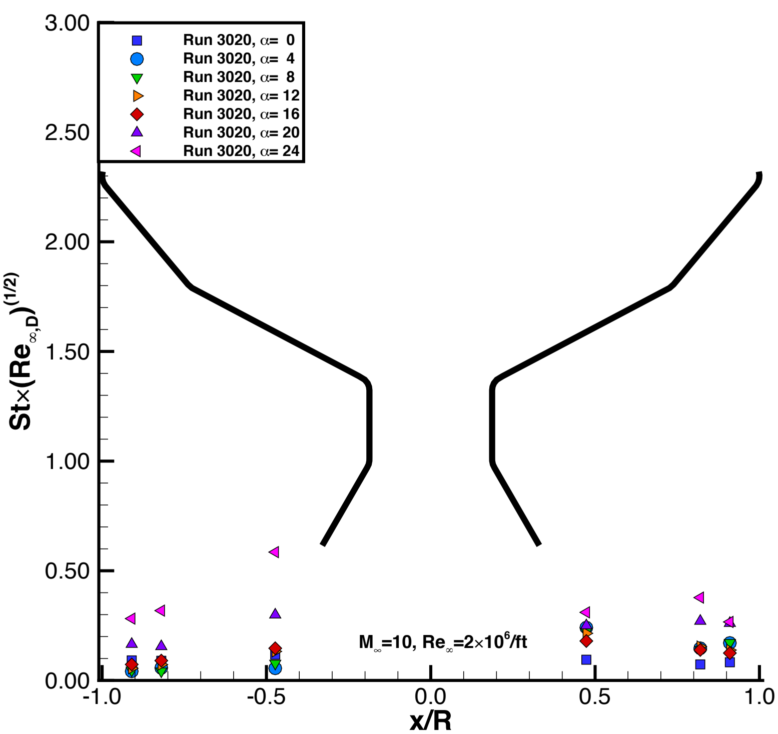


b) Aftbody

Figure 64. Angle-of-attack effects on fore/aft-body centerline heating, Mach 10 nozzle, $Re_{\infty,AV} = 1\times10^6$/ft.

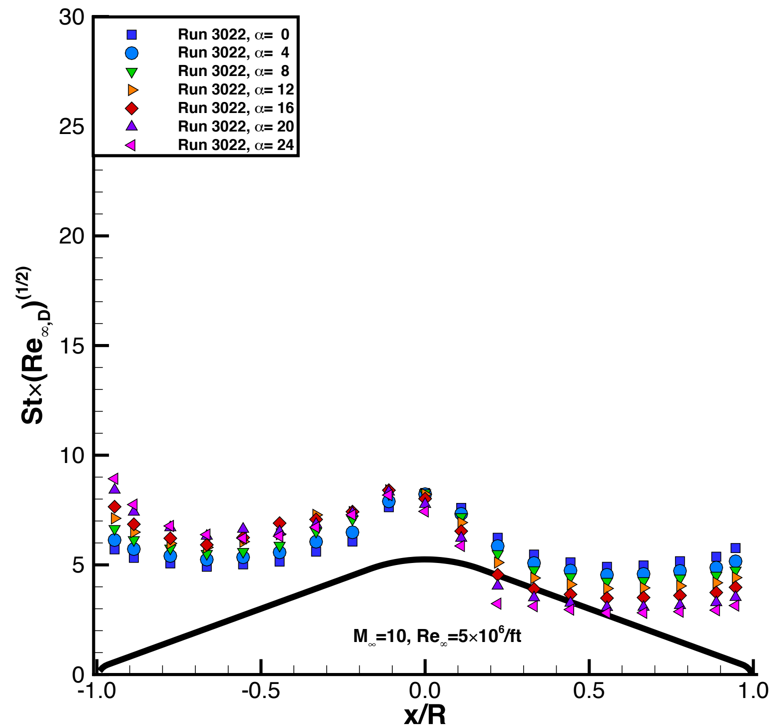


a) Forebody

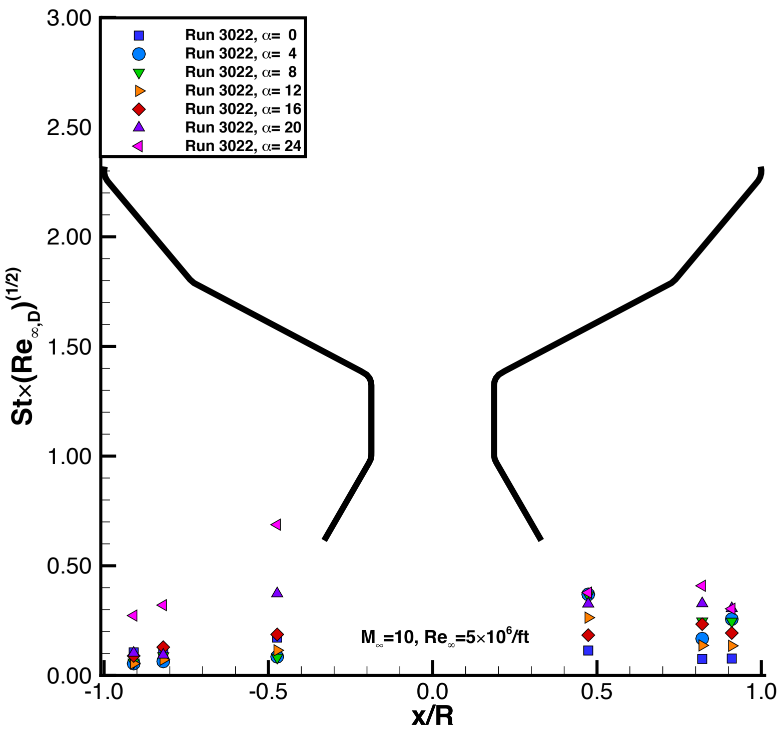


b) Aftbody

Figure 65. Angle-of-attack effects on fore/aft-body centerline heating, Mach 10 nozzle, $Re_{\infty,AV} = 2\times10^6$/ft.

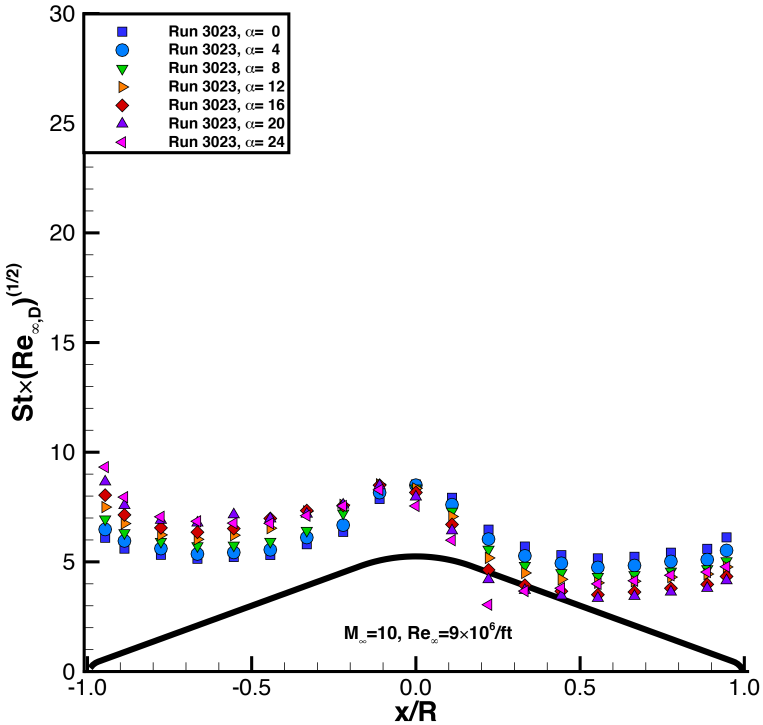


a) Forebody

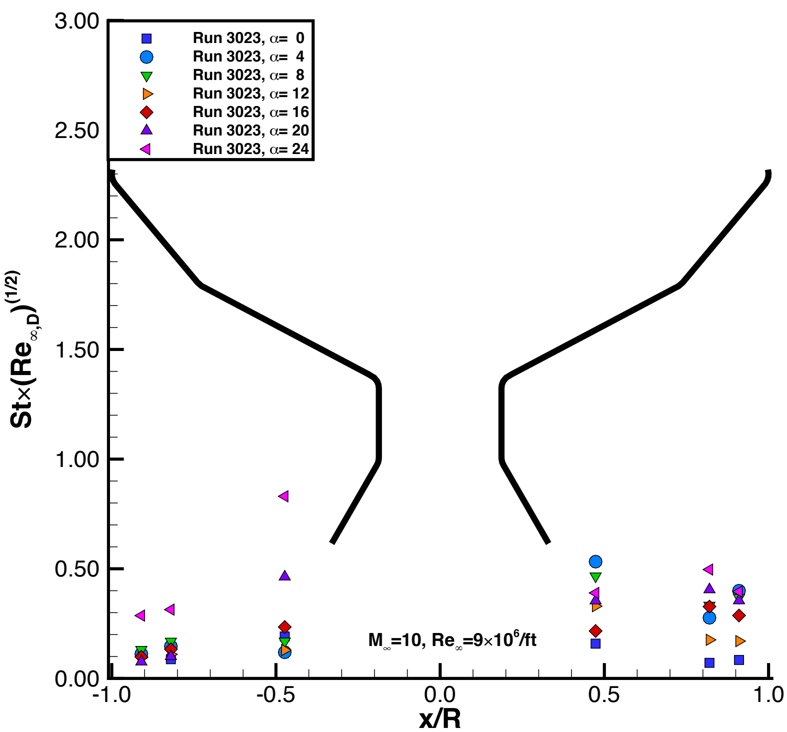


b) Aftbody

Figure 66. Angle-of-attack effects on fore/aft-body centerline heating, Mach 10 nozzle, $Re_{\infty,AV} = 5\times10^6$/ft.

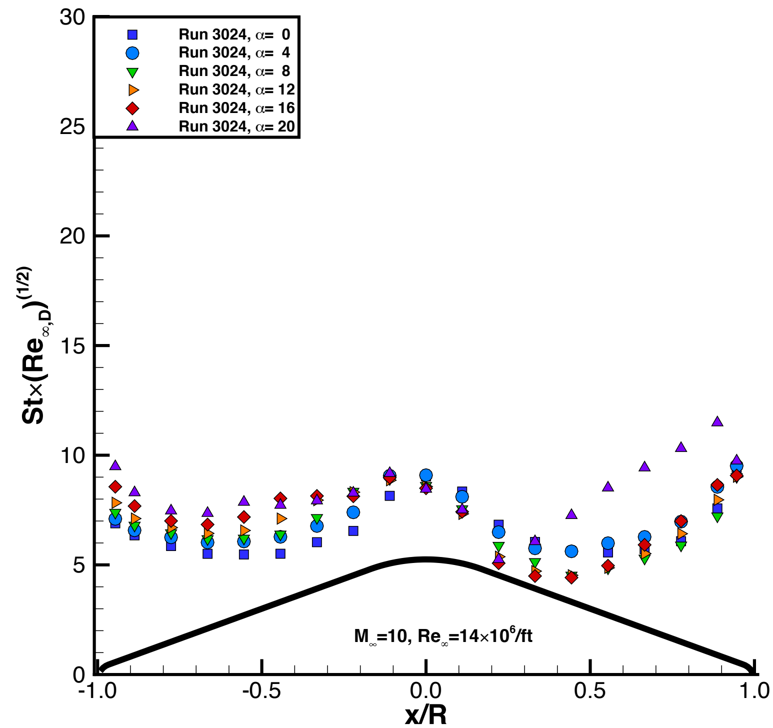


a) Forebody

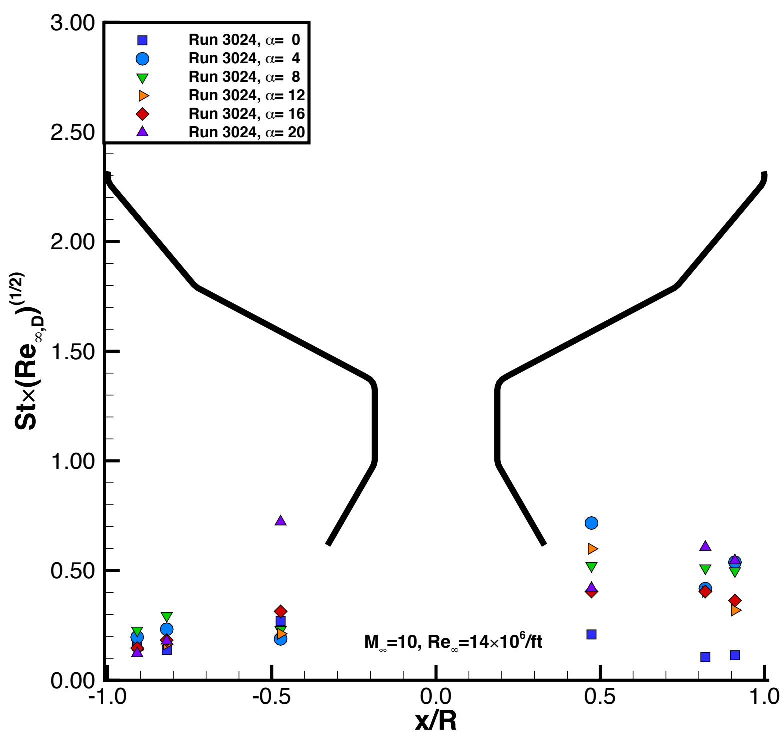


b) Aftbody

Figure 67. Angle-of-attack effects on fore/aft-body centerline heating, Mach 10 nozzle, $Re_{\infty,AV} = 9\times10^6$/ft.

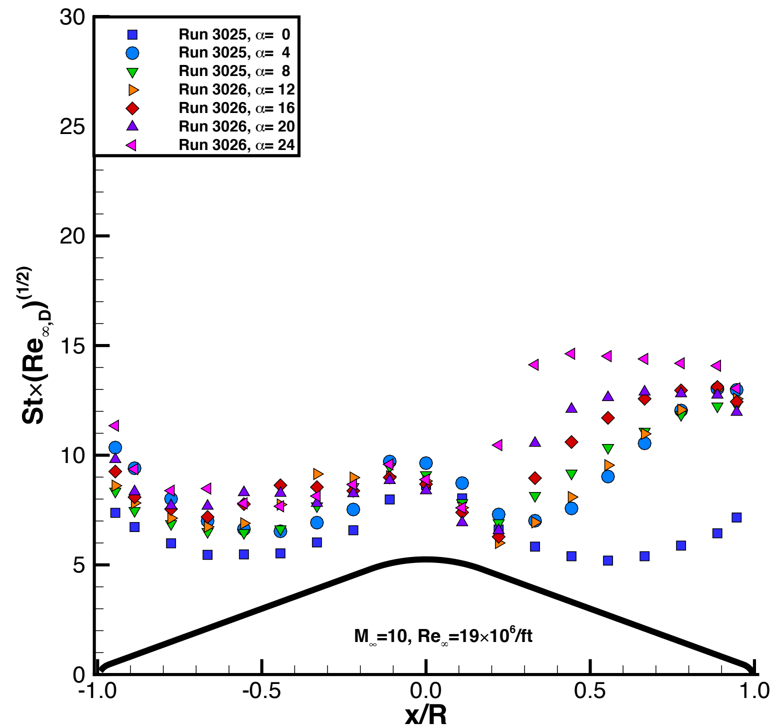


a) Forebody

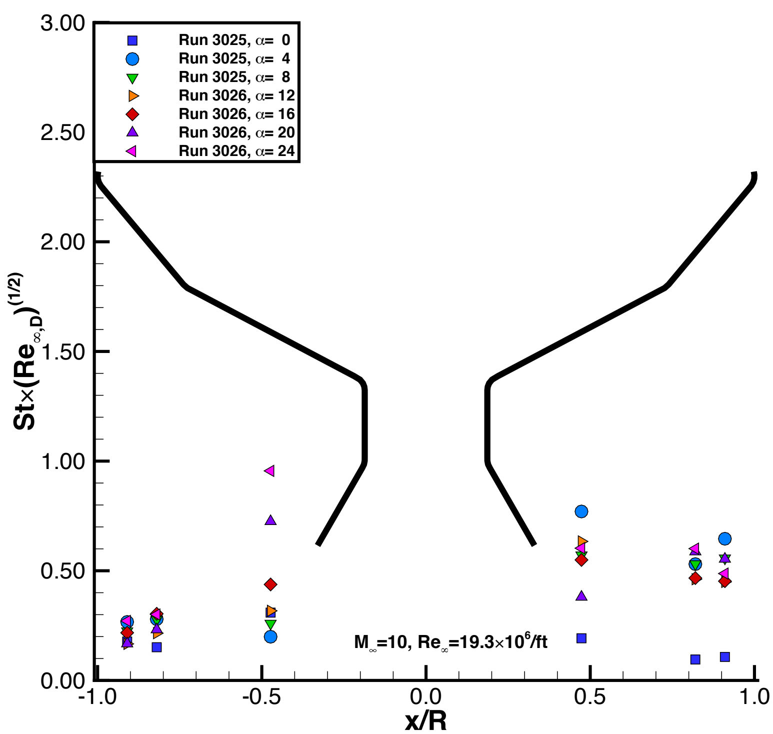


b) Aftbody

Figure 68. Angle-of-attack effects on fore/aft-body centerline heating, Mach 10 nozzle, $Re_{\infty,AV} = 14\times10^6$/ft.

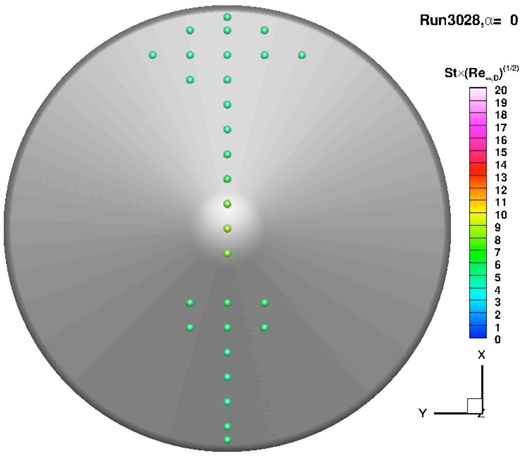


a) Forebody

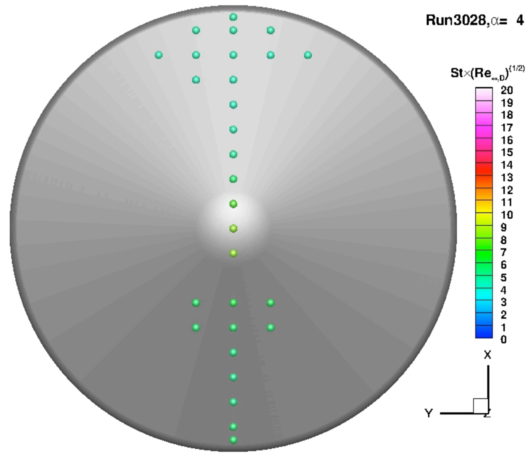


b) Aftbody

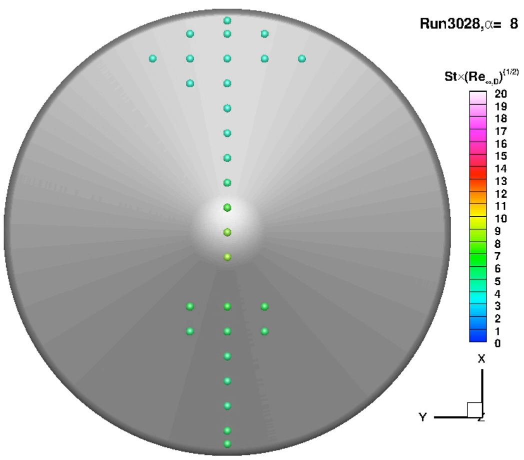
Figure 69. Angle-of-attack effects on fore/aft-body centerline heating, Mach 10 nozzle, $Re_{\infty,AV} = 19\times10^6$/ft.



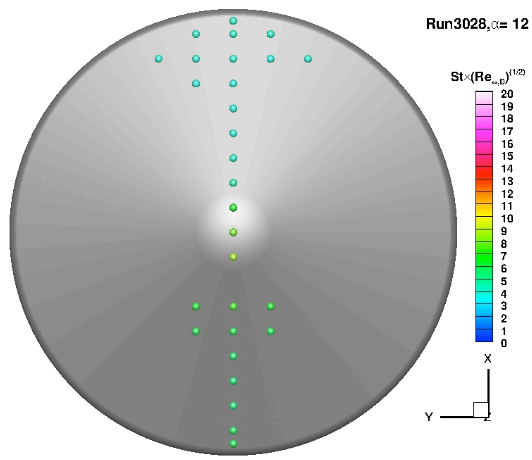
a) **Run 3028, $\alpha = 0°$**



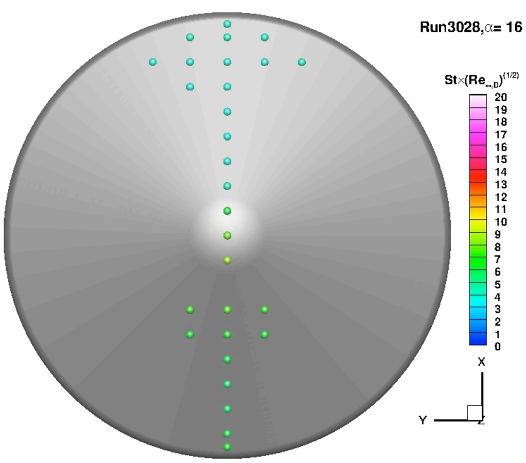
b) **Run 3028, $\alpha = 4°$**



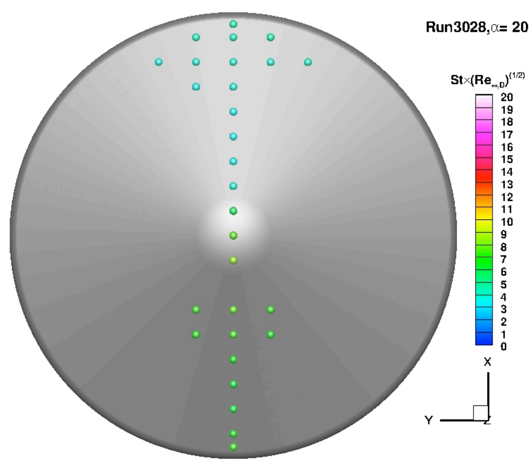
c) **Run 3028, $\alpha = 8°$**



d) **Run 3028, $\alpha = 12°$**

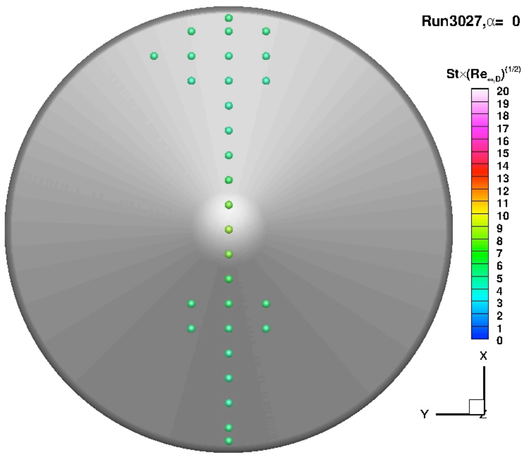


e) **Run 3028, $\alpha = 16°$**

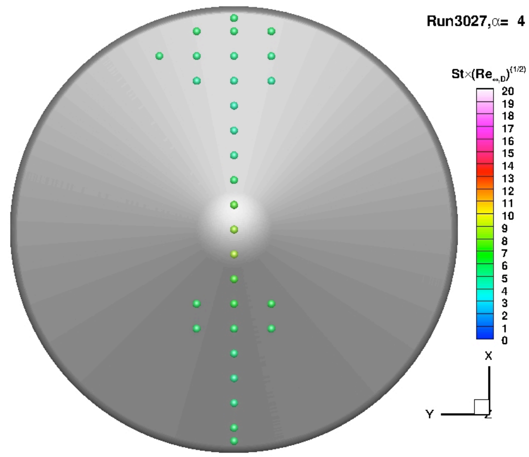


f) **Run 3028, $\alpha = 20°$**

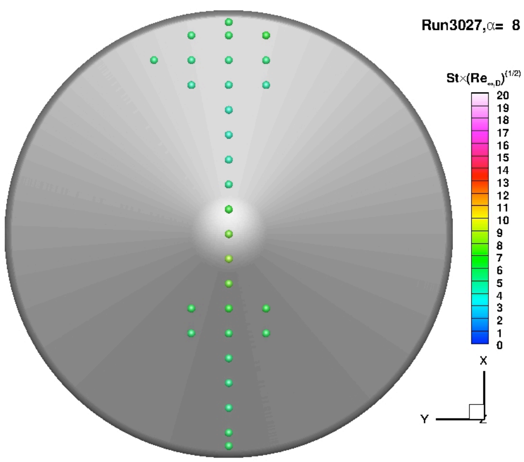
Figure 70. Angle-of-attack effects on forebody heating, Mach 8 nozzle, $Re_{\infty,AV} = 4\times10^6$/ft.



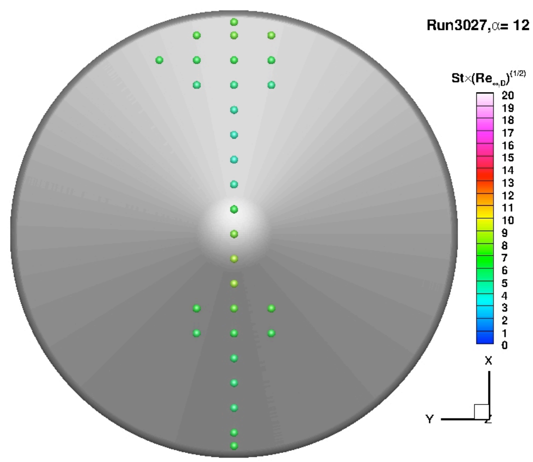
a) **Run 3027, $\alpha = 0°$**



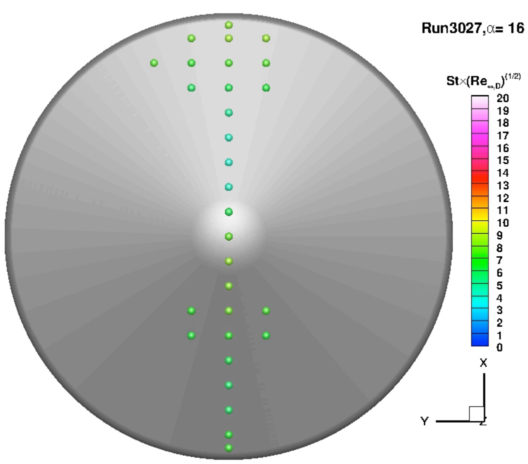
b) **Run 3027, $\alpha = 4°$**



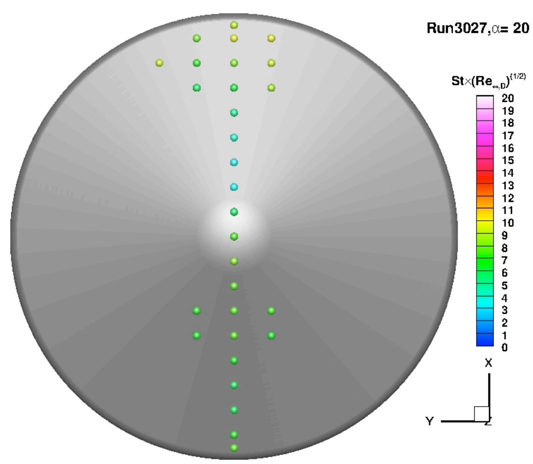
c) **Run 3027, $\alpha = 8°$**



d) **Run 3027, $\alpha = 12°$**

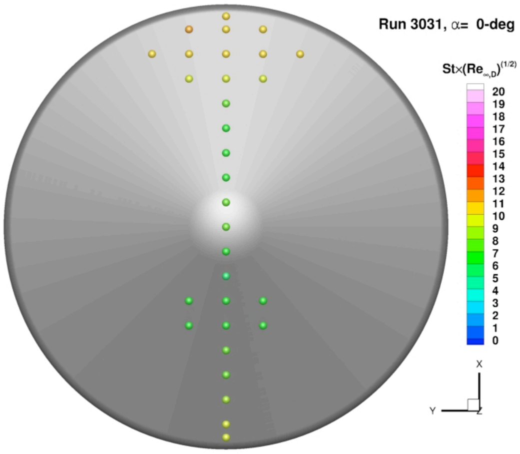


e) **Run 3027, $\alpha = 16°$**

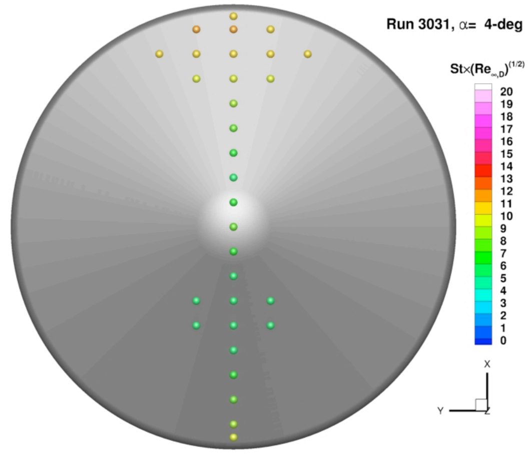


f) **Run 3027, $\alpha = 20°$**

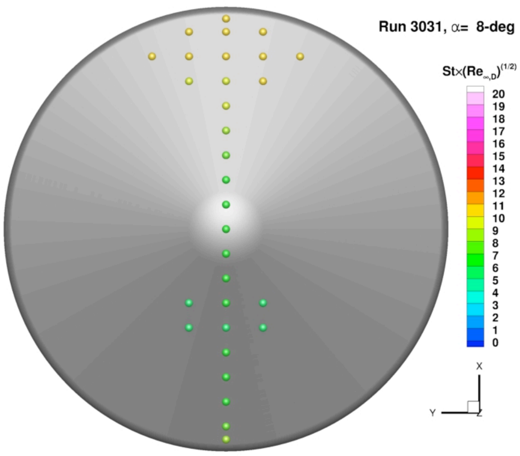
Figure 71. Angle-of-attack effects on forebody heating, Mach 8 nozzle, $Re_{\infty,AV} = 8\times10^{6}$/ft.



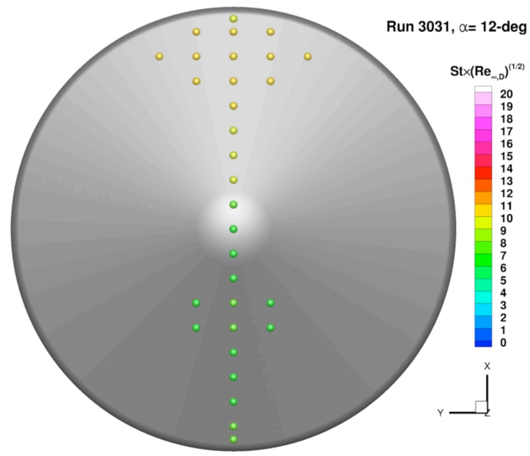
a) **Run 3031, $\alpha = 0°$**



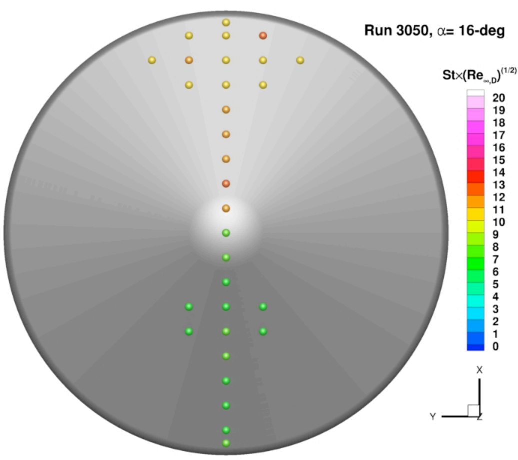
b) **Run 3031, $\alpha = 4°$**



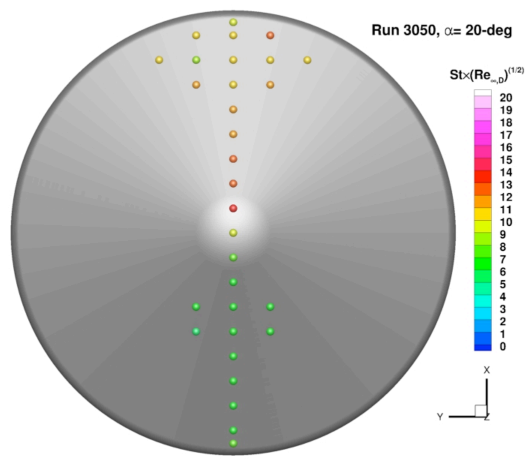
c) **Run 3031, $\alpha = 8°$**



d) **Run 3031, $\alpha = 12°$**

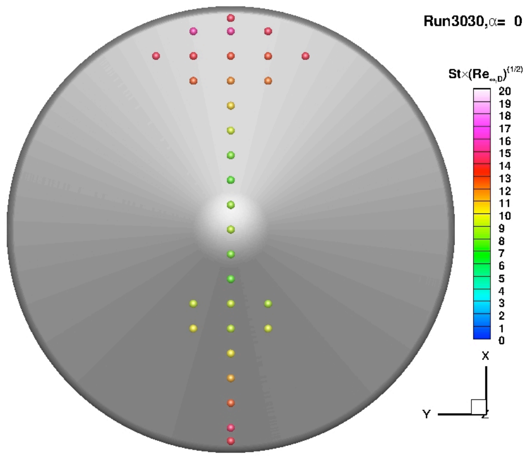


e) **Run 3050, $\alpha = 16°$**

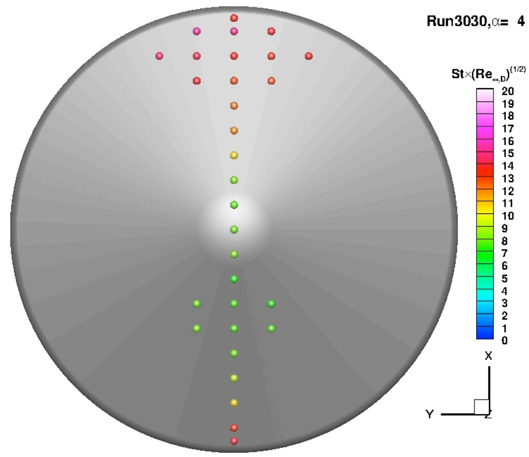


f) **Run 3050, $\alpha = 20°$**

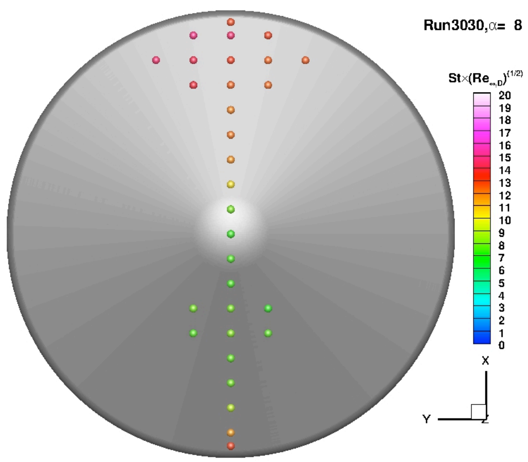
Figure 72. Angle-of-attack effects on forebody heating, Mach 8 nozzle, $Re_{\infty,AV} = 16\times10^6$/ft.



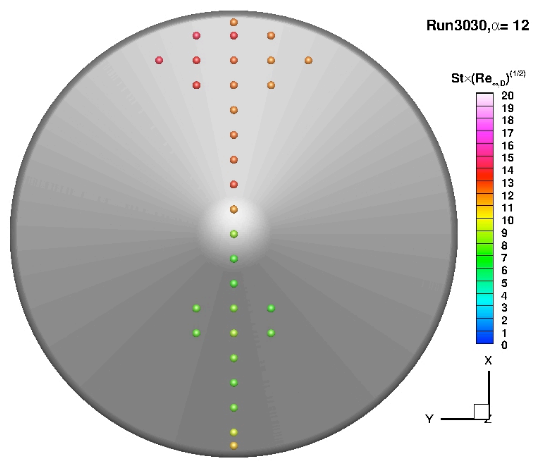
a) **Run 3030, $\alpha = 0°$**



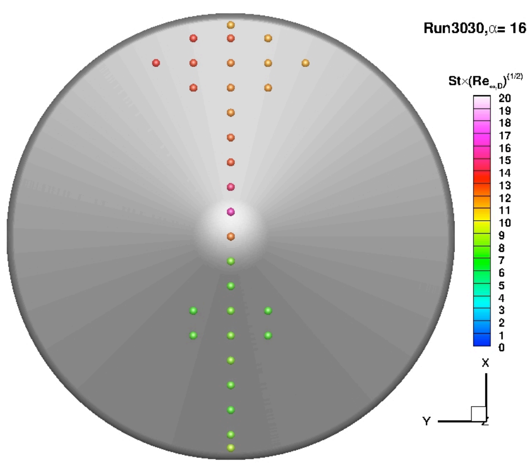
b) **Run 3030, $\alpha = 4°$**



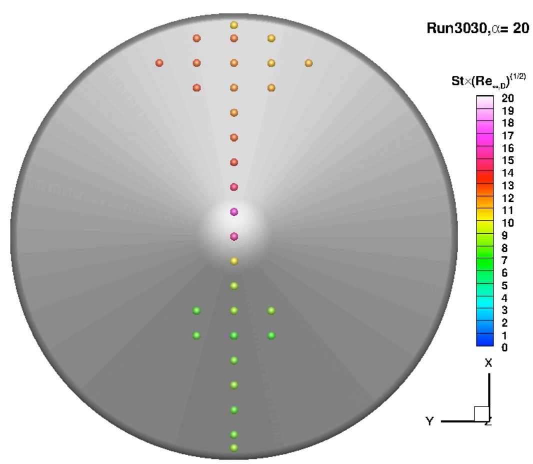
c) **Run 3030, $\alpha = 8°$**



d) **Run 3030, $\alpha = 12°$**



e) **Run 3030, $\alpha = 16°$**

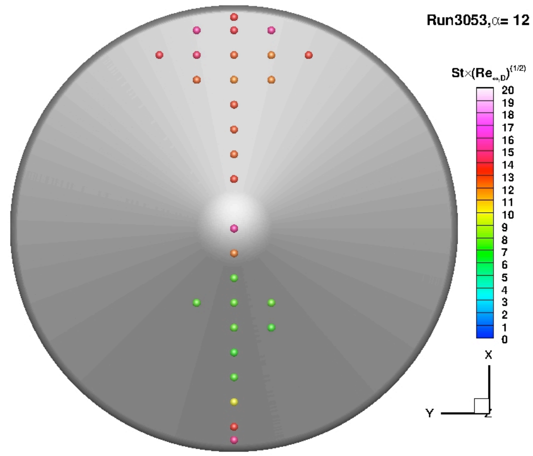


f) **Run 3030, $\alpha = 20°$**

Figure 73. Angle-of-attack effects on forebody heating, Mach 8 nozzle, $Re_{\infty,AV} = 22\times10^6$/ft.

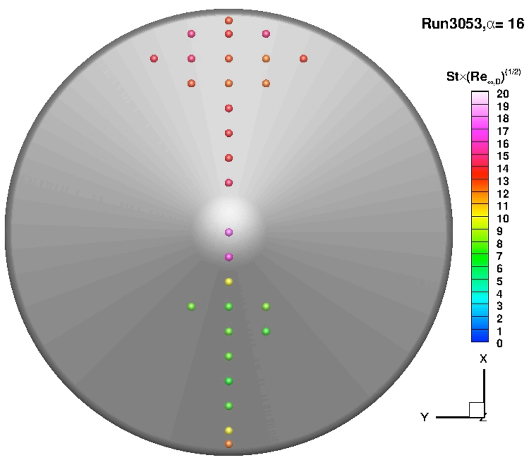
a) α = **0° not tested**

b) α = **4° not tested**

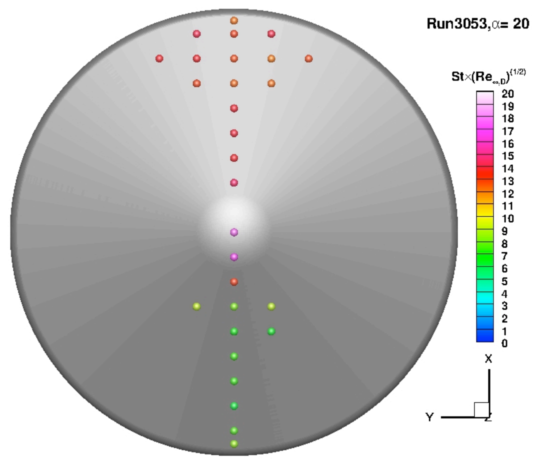


c) α = **8° not tested**

d) **Run 3053,** α = **12°**

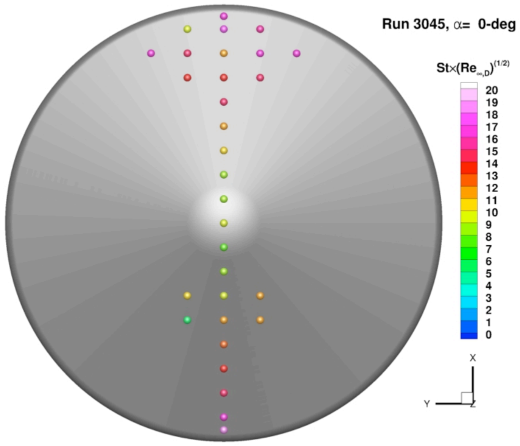


e) **Run 3053,** α = **16°**



f) **Run 3053,** α = **20°**

Figure 74. Angle-of-attack effects on forebody heating, Mach 8 nozzle, $Re_{\infty,AV}$ = 30×10^6/ft.

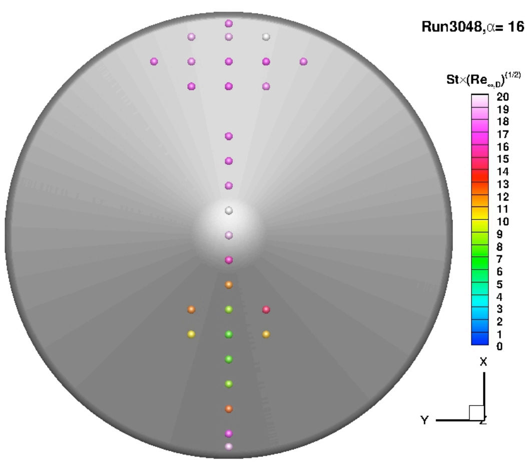


a) **Run 3045, $\alpha = 0°$**

b) α **= 4° not tested**

c) α **= 8° not tested**

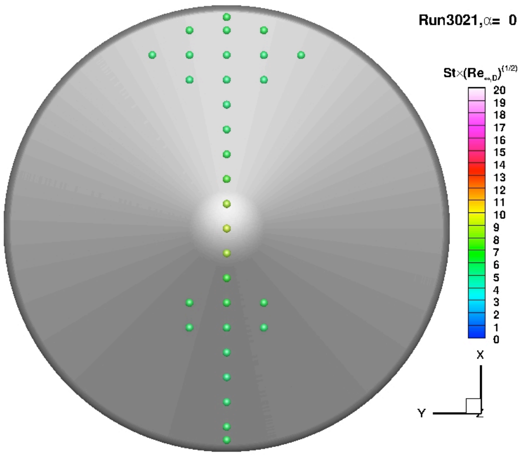
d) α **= 12° not tested**



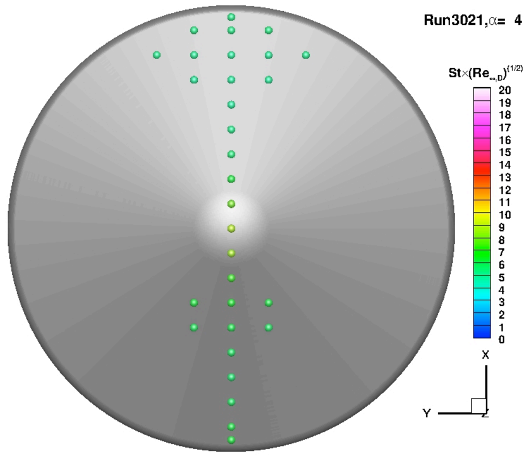
e) **Run 3048, $\alpha = 16°$**

f) α **= 20° not tested**

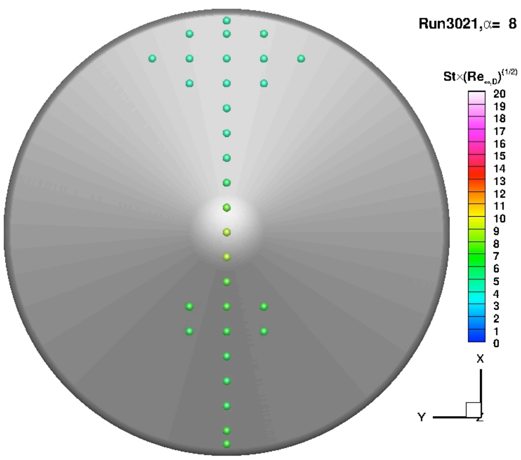
Figure 75. Angle-of-attack effects on forebody heating, Mach 8 nozzle, $Re_{\infty,AV} = 47\times10^6$/ft.



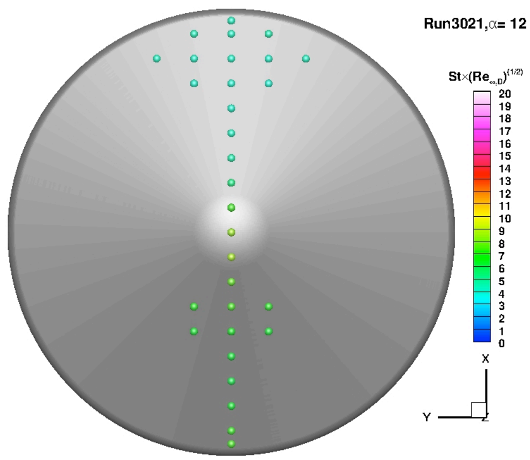
a) **Run 3021, $\alpha = 0°$**



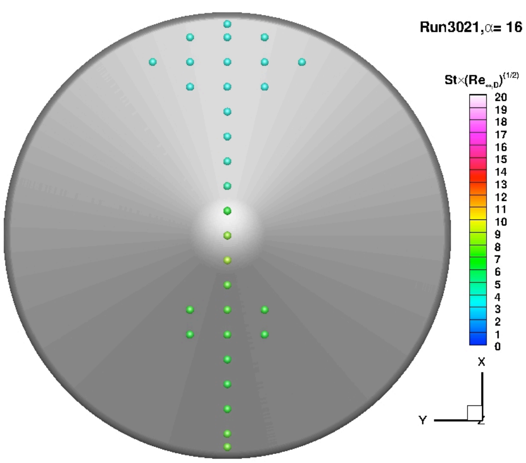
b) **Run 3021, $\alpha = 4°$**



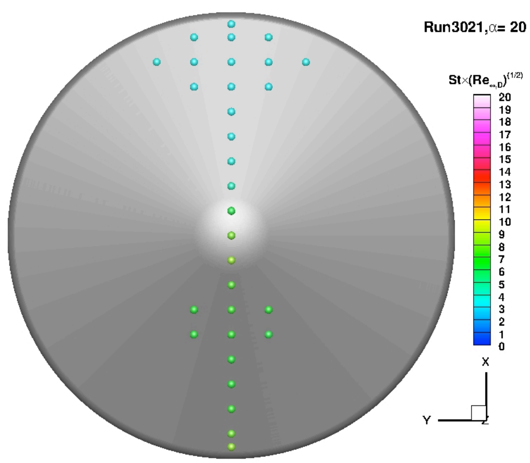
c) **Run 3021, $\alpha = 8°$**



d) **Run 3021, $\alpha = 12°$**

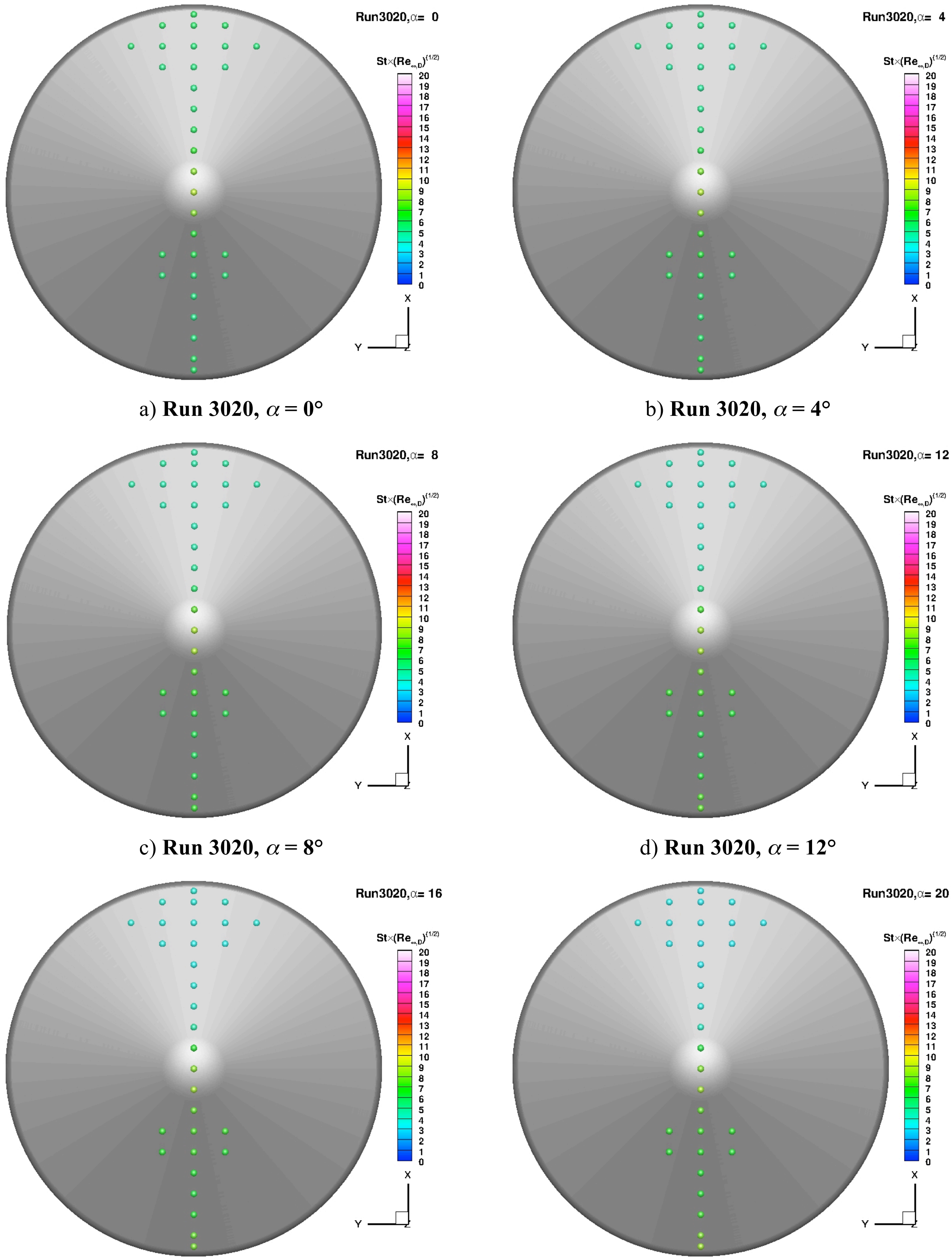


e) **Run 3021, $\alpha = 16°$**



f) **Run 3021, $\alpha = 20°$**

Figure 76. Angle-of-attack effects on forebody heating, Mach 10 nozzle, $Re_{\infty,AV} = 1\times10^6$/ft.



a) **Run 3020, $\alpha = 0°$**

b) **Run 3020, $\alpha = 4°$**

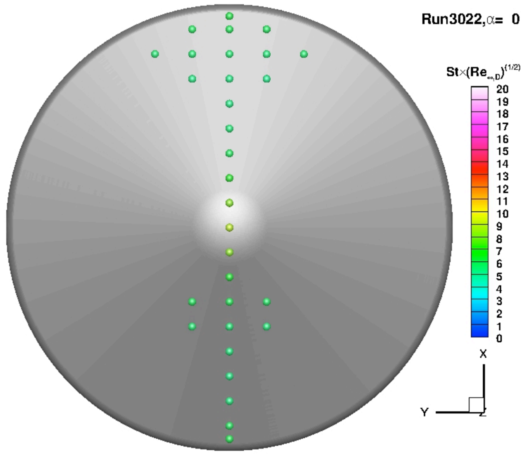
c) **Run 3020, $\alpha = 8°$**

d) **Run 3020, $\alpha = 12°$**

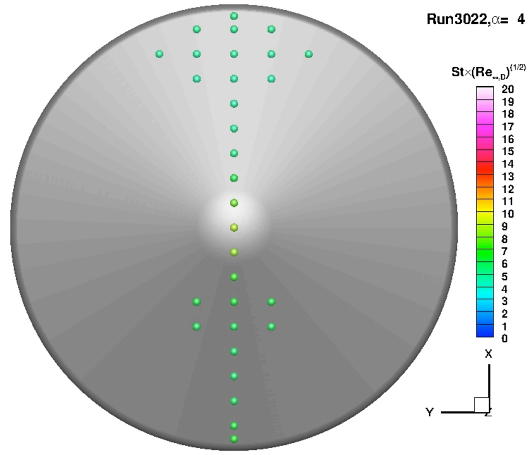
e) **Run 3020, $\alpha = 16°$**

f) **Run 3020, $\alpha = 20°$**

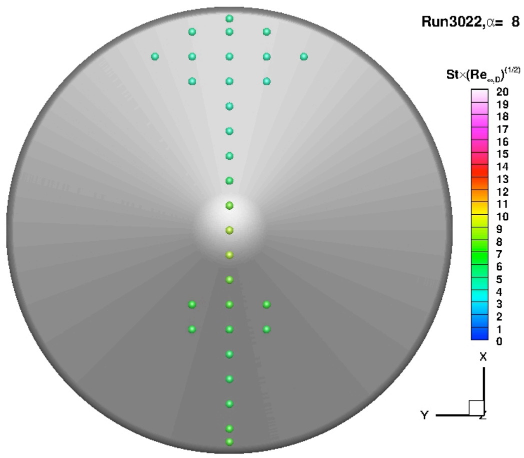
Figure 77. Angle-of-attack effects on forebody heating, Mach 10 nozzle, $Re_{\infty,AV} = 2\times10^6$/ft.



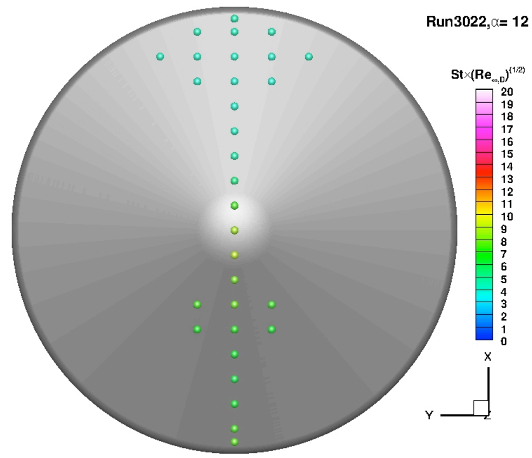
a) **Run 3022, $\alpha = 0°$**



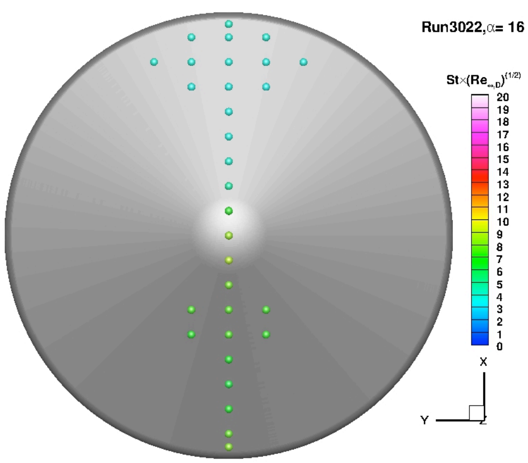
b) **Run 3022, $\alpha = 4°$**



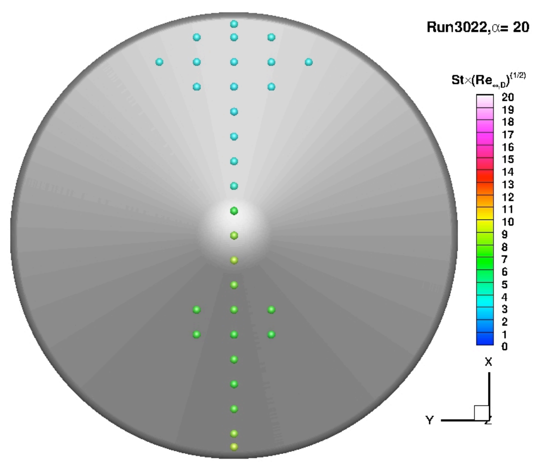
c) **Run 3022, $\alpha = 8°$**



d) **Run 3022, $\alpha = 12°$**

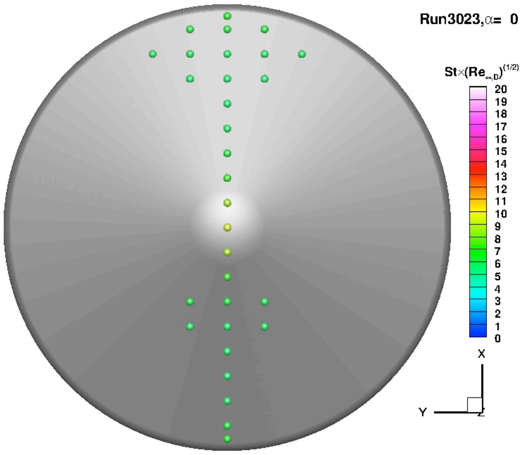


e) **Run 3022, $\alpha = 16°$**

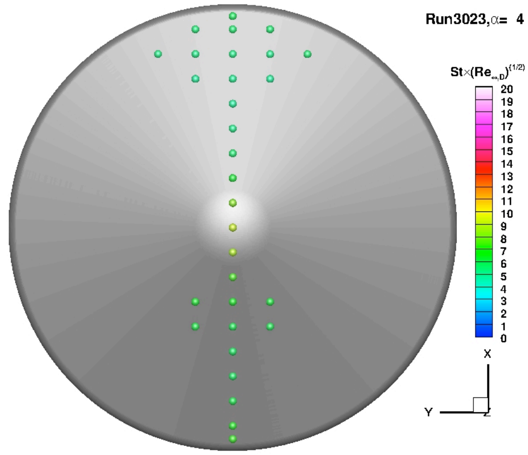


f) **Run 3022, $\alpha = 20°$**

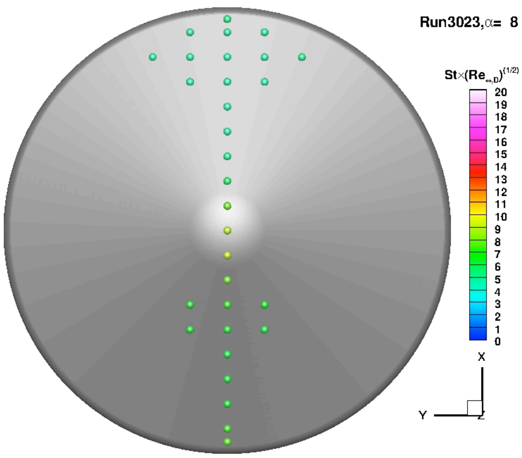
Figure 78. Angle-of-attack effects on forebody heating, Mach 10 nozzle, $Re_{\infty,AV} = 5\times10^6$/ft.



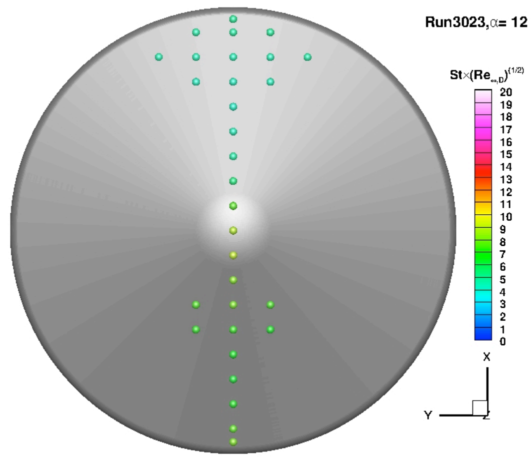
a) **Run 3023, α = 0°**



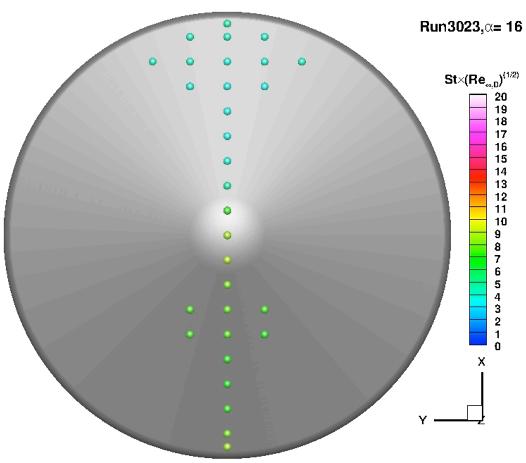
b) **Run 3023, α = 4°**



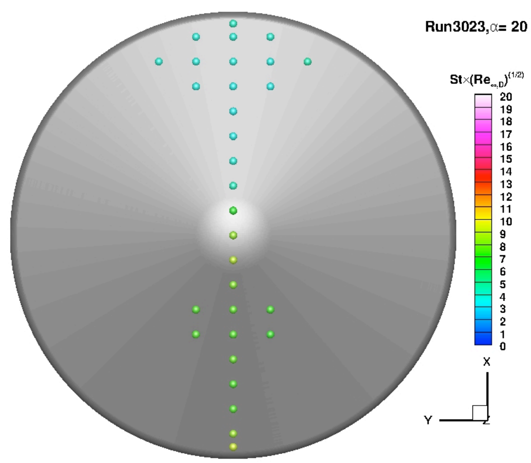
c) **Run 3023, α = 8°**



d) **Run 3023, α = 12°**

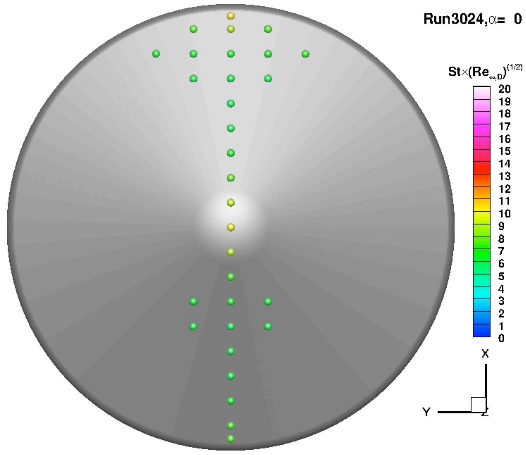


e) **Run 3023, α = 16°**

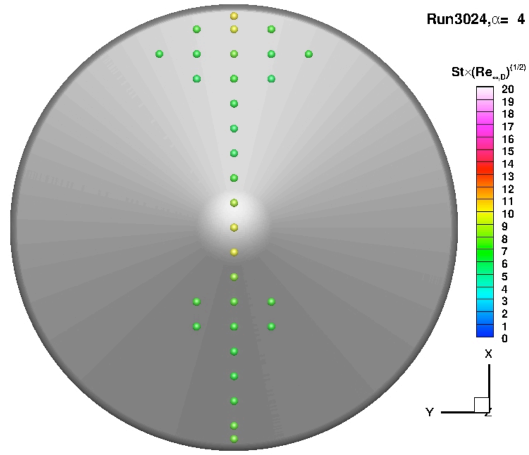


f) **Run 3023, α = 20°**

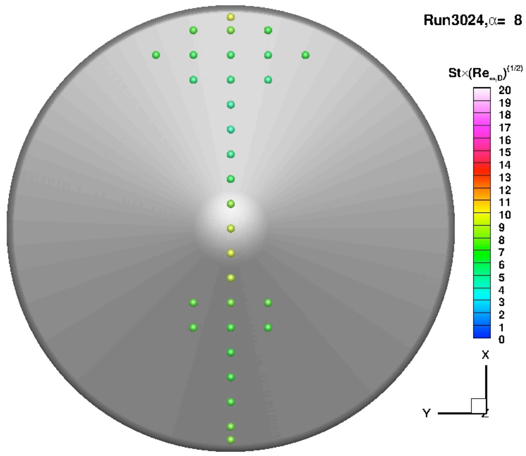
Figure 79. Angle-of-attack effects on forebody heating, Mach 10 nozzle, $Re_{\infty,AV} = 9\times10^6$/ft.



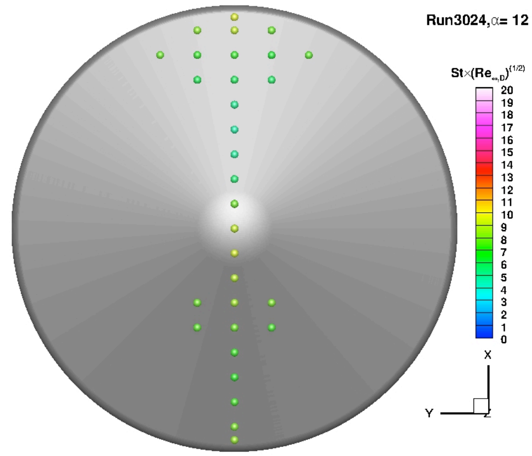
a) **Run 3024, $\alpha = 0°$**



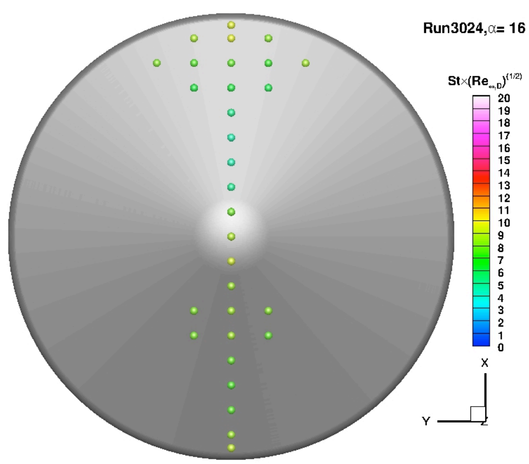
b) **Run 3024, $\alpha = 4°$**



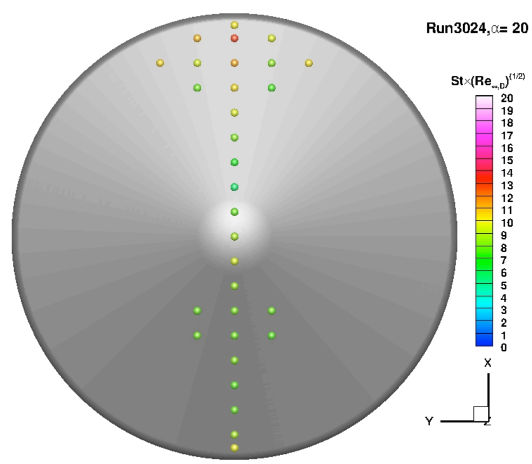
c) **Run 3024, $\alpha = 8°$**



d) **Run 3024, $\alpha = 12°$**

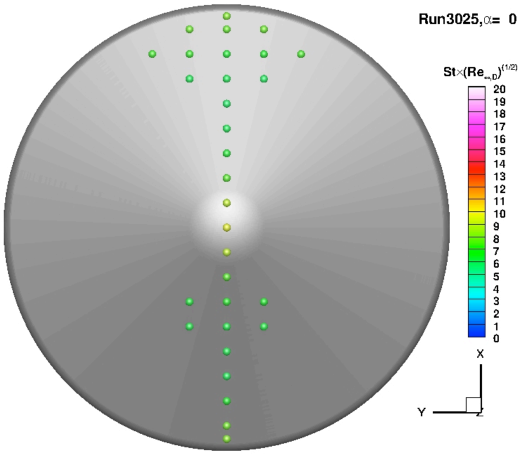


e) **Run 3024, $\alpha = 16°$**

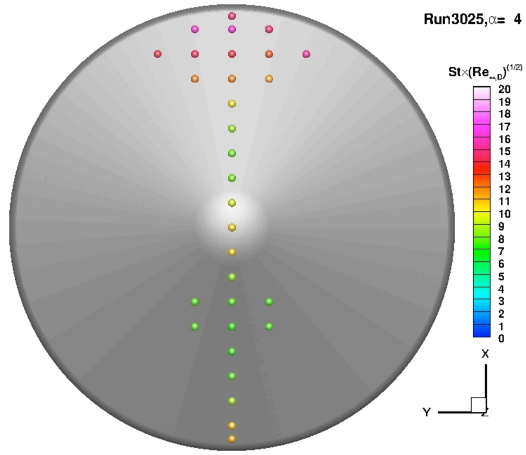


f) **Run 3024, $\alpha = 20°$**

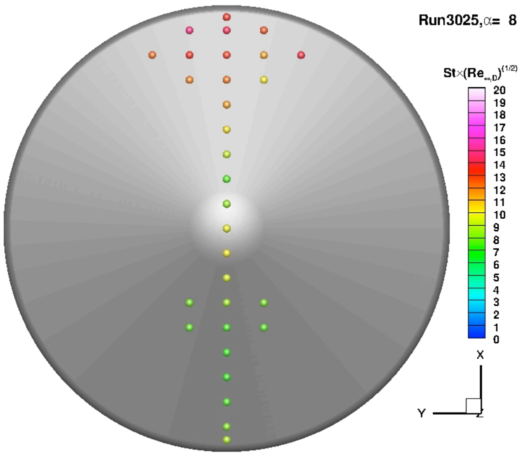
Figure 80. Angle-of-attack effects on forebody heating, Mach 10 nozzle, $Re_{\infty,AV} = 14\times10^6$/ft.



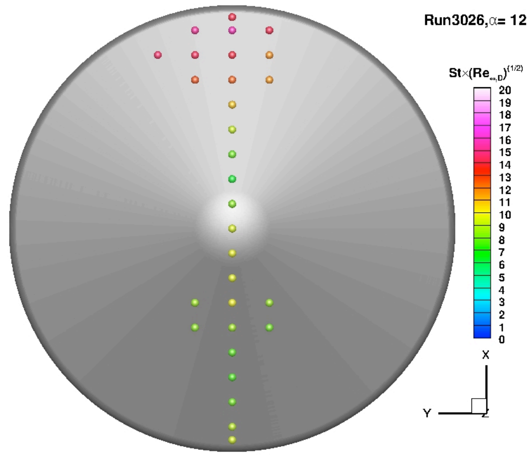
a) **Run 3025, $\alpha = 0°$**



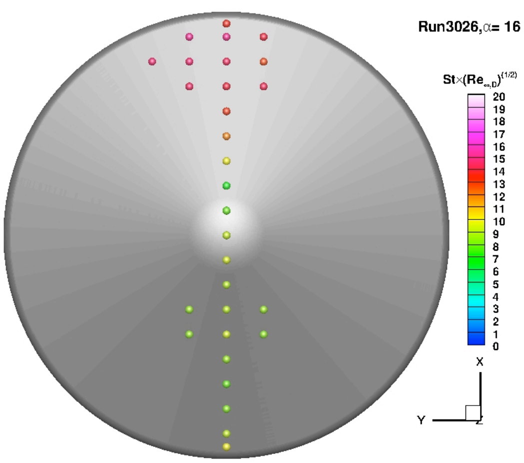
b) **Run 3025, $\alpha = 4°$**



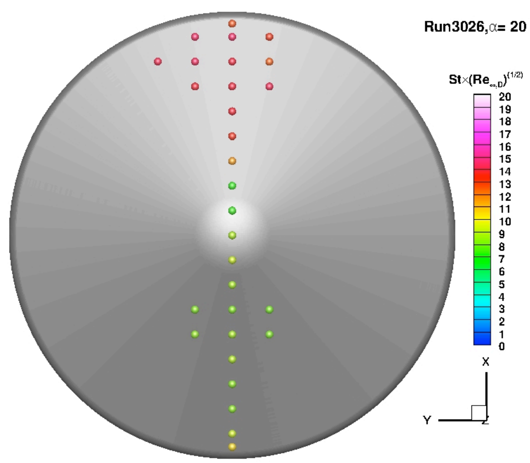
c) **Run 3025, $\alpha = 8°$**



d) **Run 3026, $\alpha = 12°$**

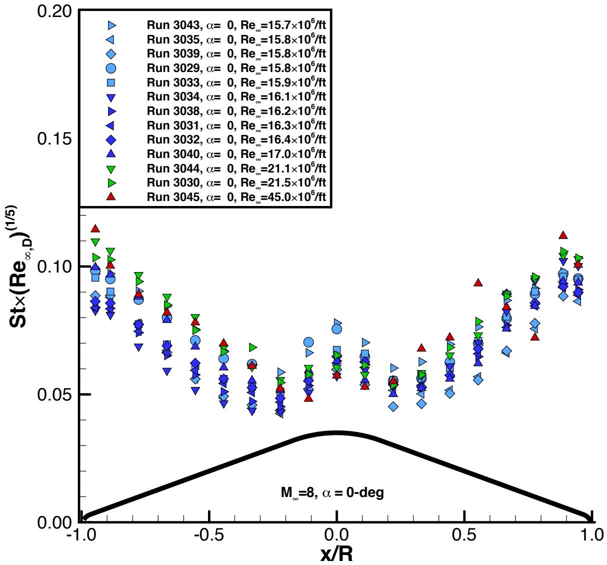


e) **Run 3026, $\alpha = 16°$**

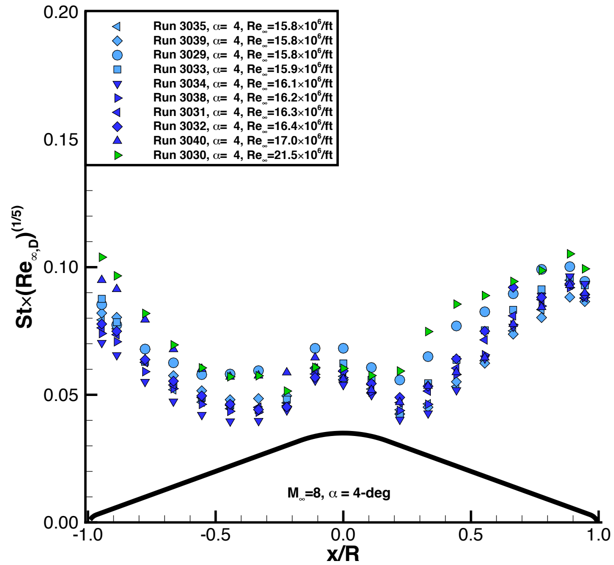


f) **Run 3026, $\alpha = 20°$**

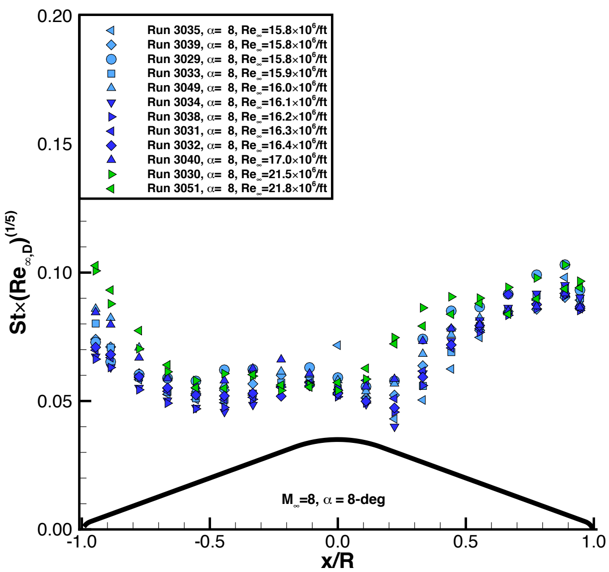
Figure 81. Angle-of-attack effects on forebody heating, Mach 10 nozzle, $Re_{\infty,AV} = 19\times10^6$/ft.



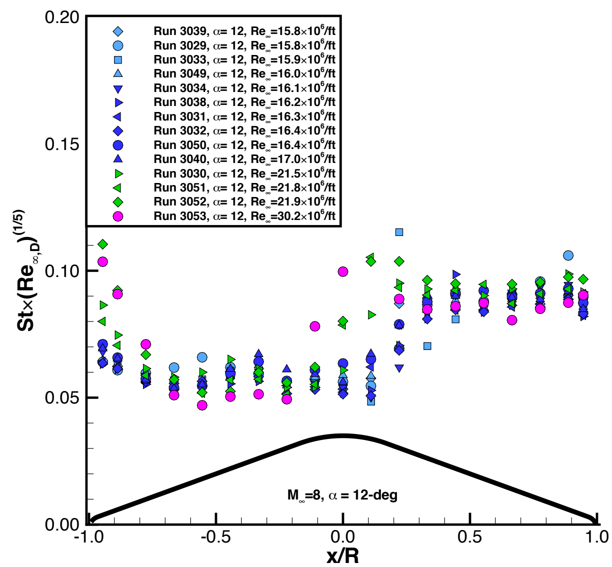
a) Mach 8, $\alpha = 0°$



b) Mach 8, $\alpha = 4°$

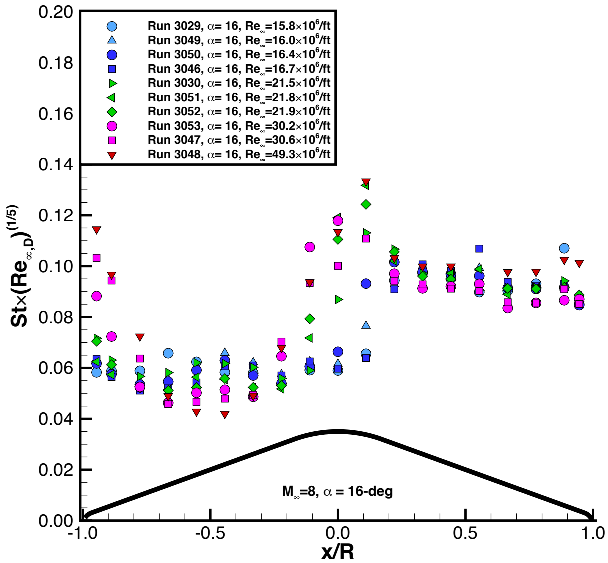


c) Mach 8, $\alpha = 8°$

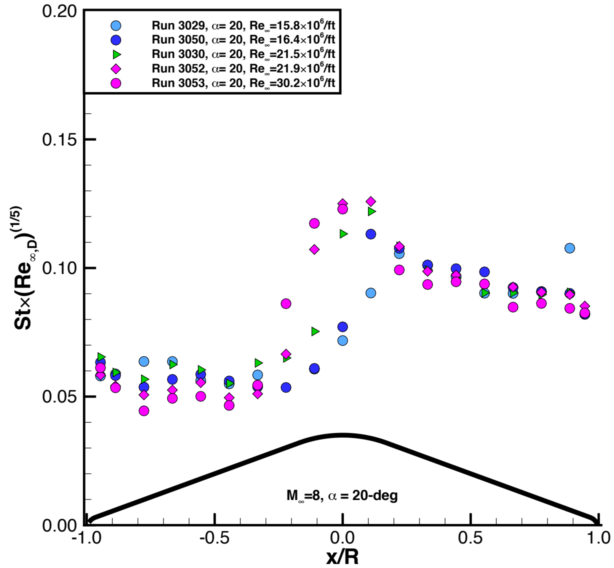


d) Mach 8, $\alpha = 12°$

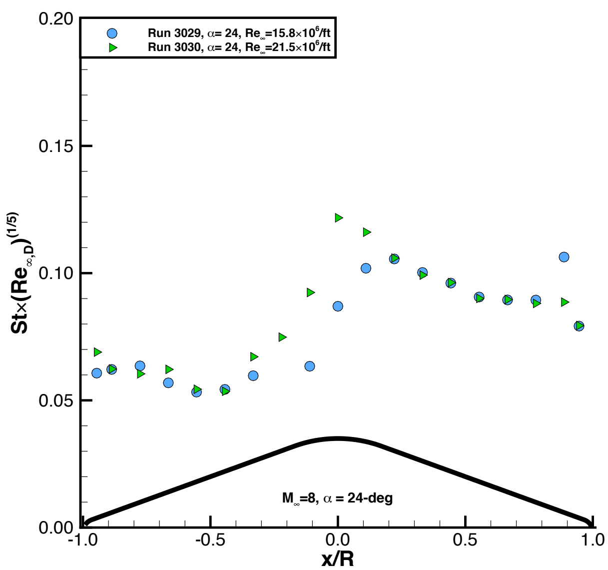
Figure 82. Correlation of turbulent heating data, Mach 8 nozzle, α = 0° to 12°.



a) Mach 8, $\alpha = 16°$

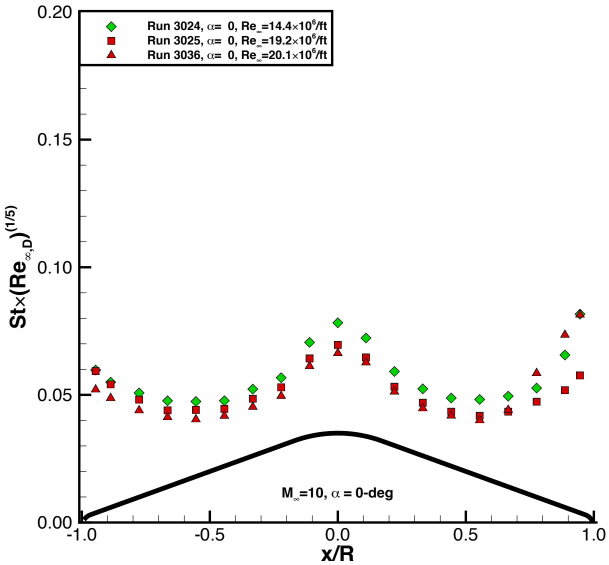


b) Mach 8, $\alpha = 20°$

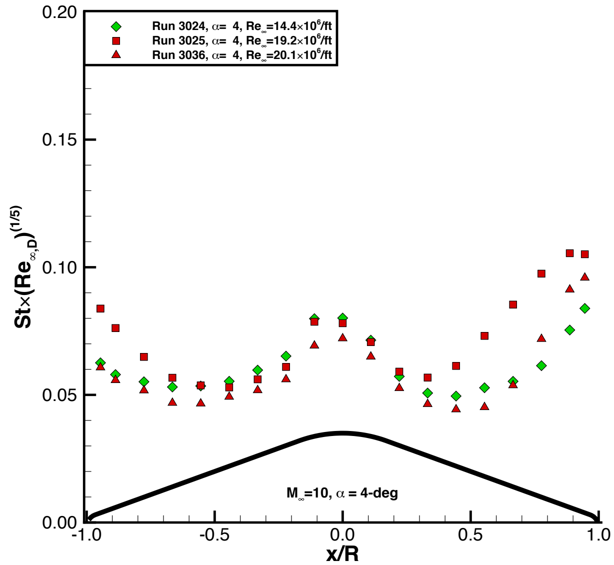


c) Mach 8, $\alpha = 24°$

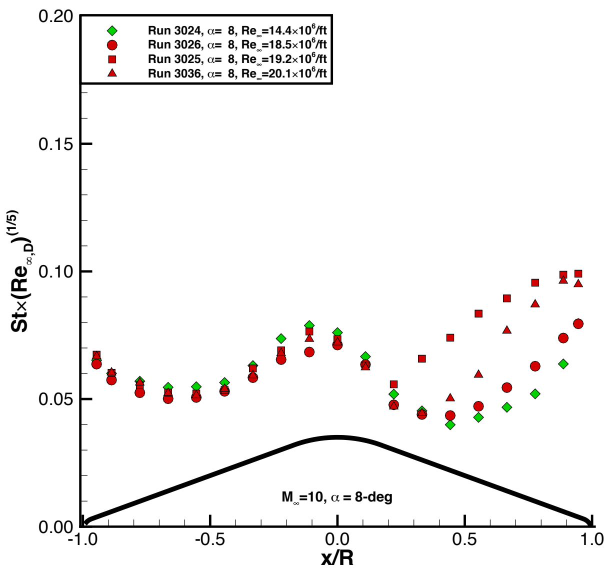
Figure 83. Correlation of turbulent heating data, Mach 8 nozzle, α = 16° to 24°.



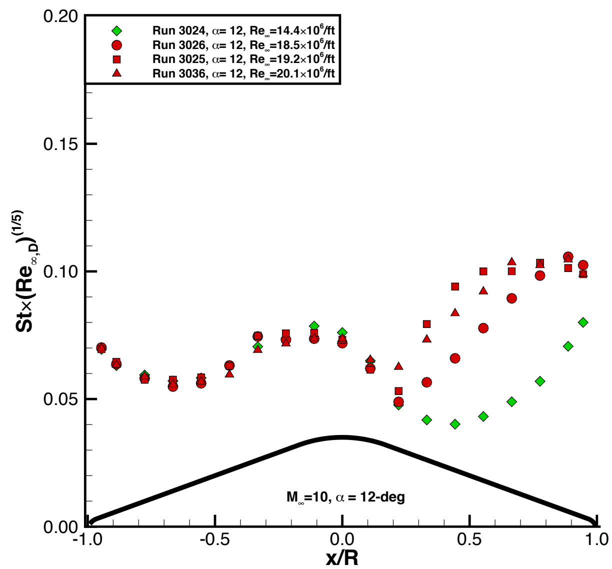
a) Mach 10, $\alpha = 0°$



b) Mach 10, $\alpha = 4°$

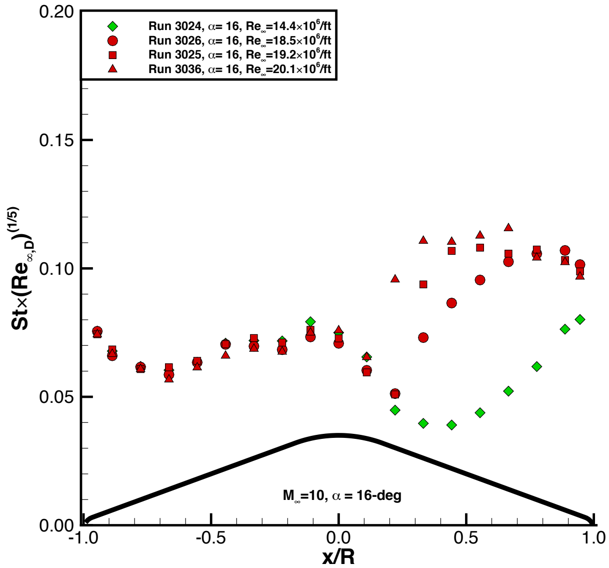


c) Mach 10, $\alpha = 8°$

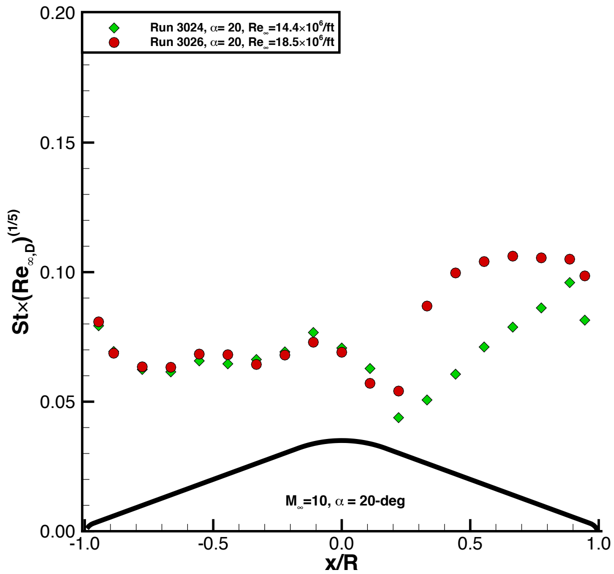


d) Mach 10, $\alpha = 12°$

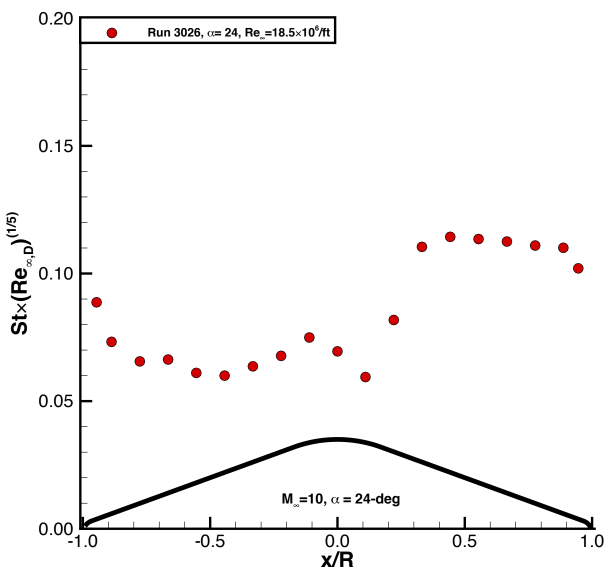
Figure 84. Correlation of turbulent heating data, Mach 10 nozzle, α = 0° to 12°.



a) Mach 10, $\alpha = 16°$

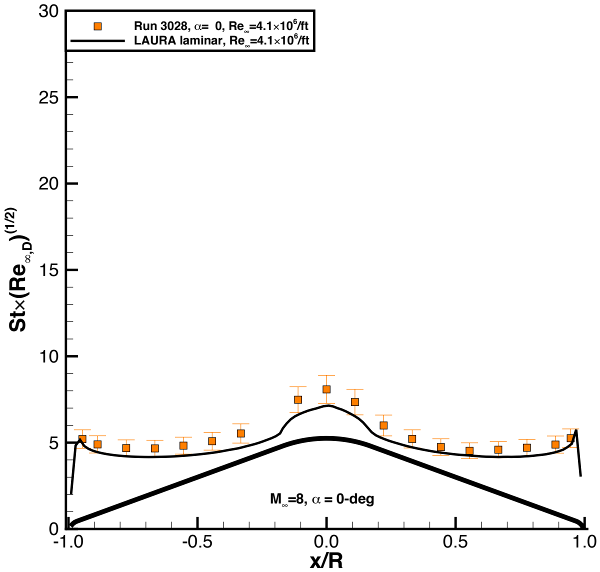


b) Mach 10, $\alpha = 20°$

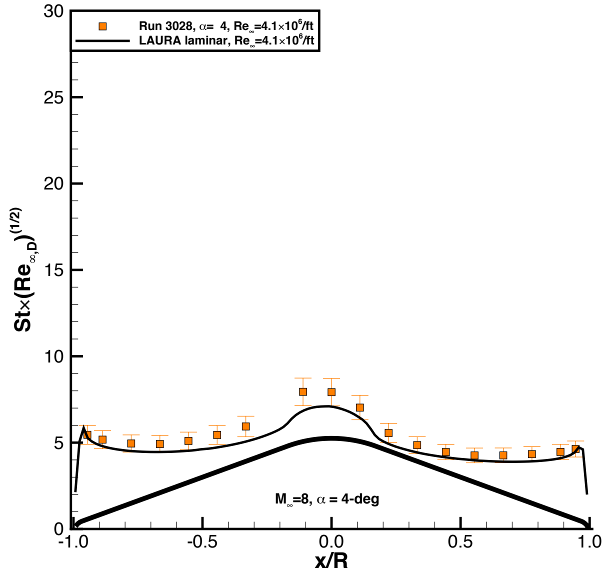


c) Mach 10, $\alpha = 24°$

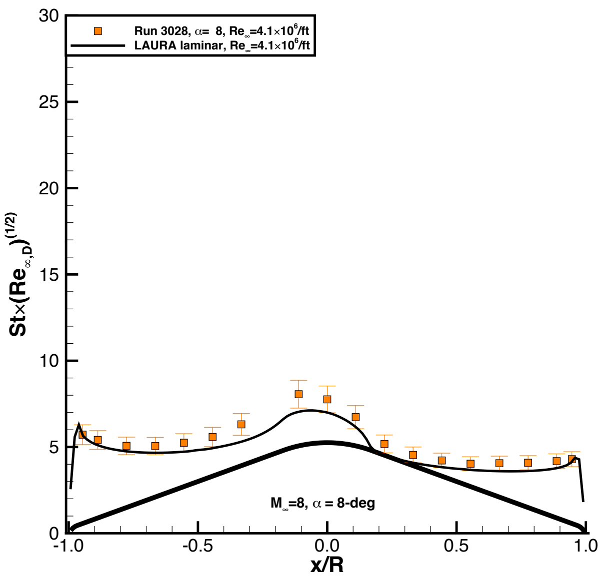
Figure 85. Correlation of turbulent heating data, Mach 10 nozzle, α = 16° to 24°.



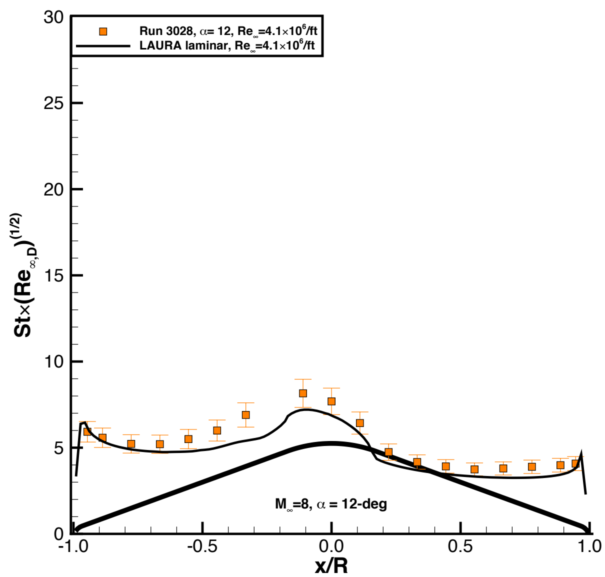
a) Comparison at $\alpha = 0°$



b) Comparison at $\alpha = 4°$

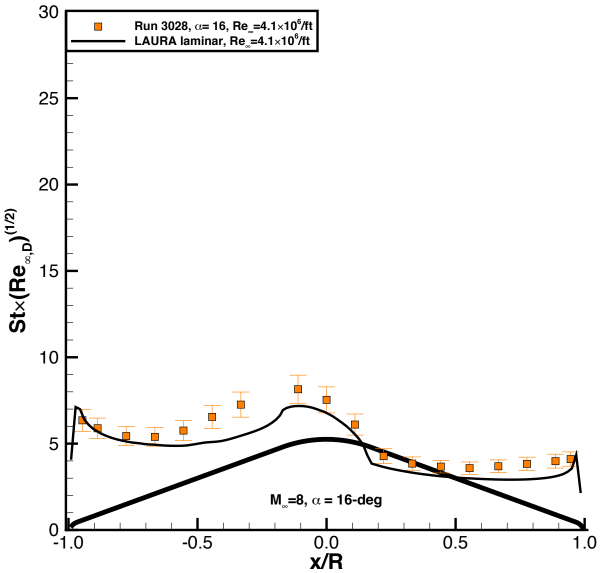


c) Comparison at $\alpha = 8°$

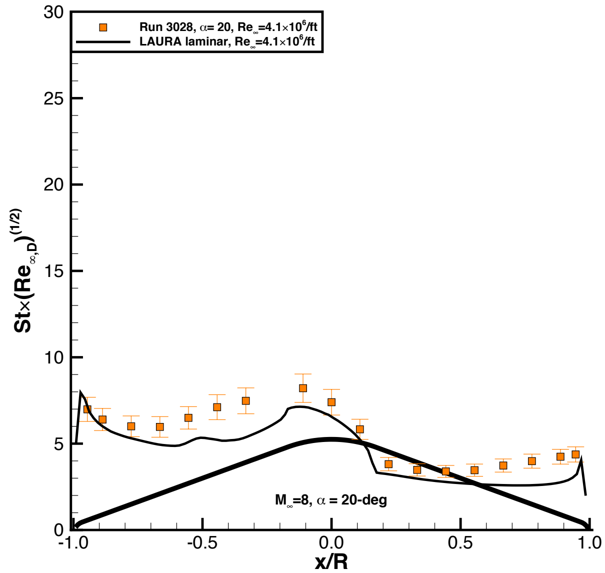


d) Comparison at $\alpha = 12°$

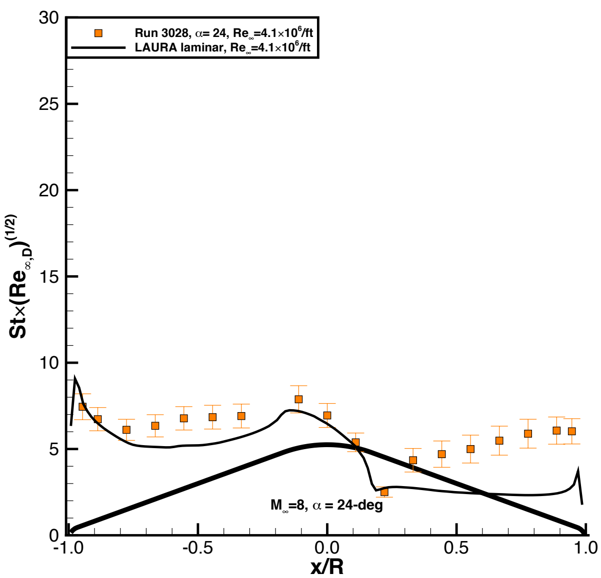
Figure 86. Comparison of predictions to data, Mach = 8 nozzle, $Re_{\infty,AV} = 4\times10^6$/ft, $\alpha = 0°$ to $12°$.



a) Comparison at $\alpha = 16°$

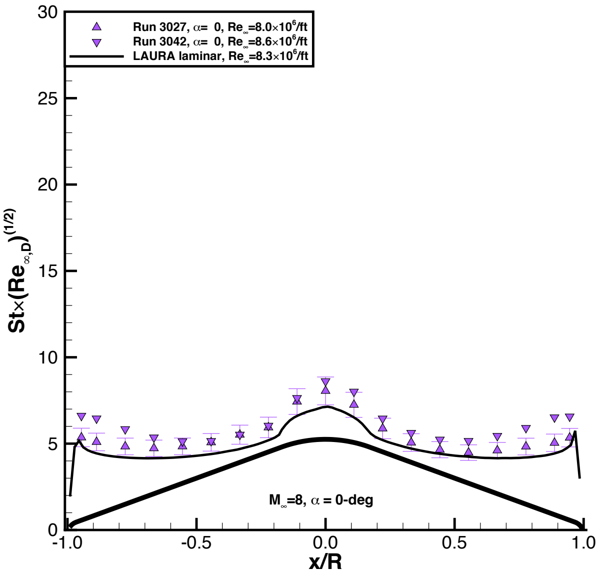


b) Comparison at $\alpha = 20°$

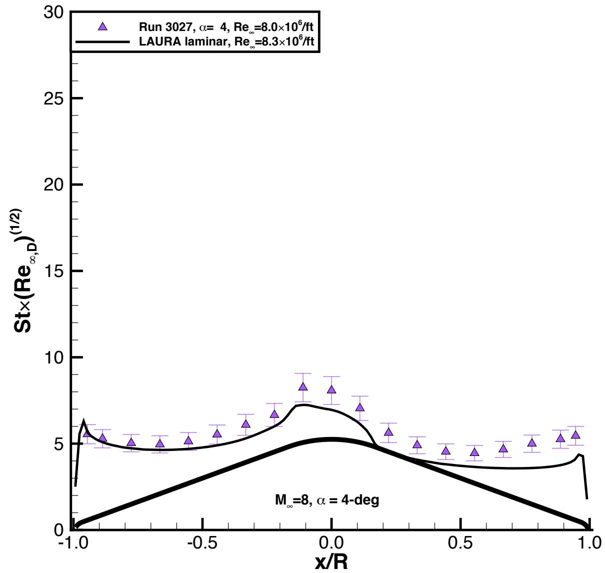


c) Comparison at $\alpha = 24°$

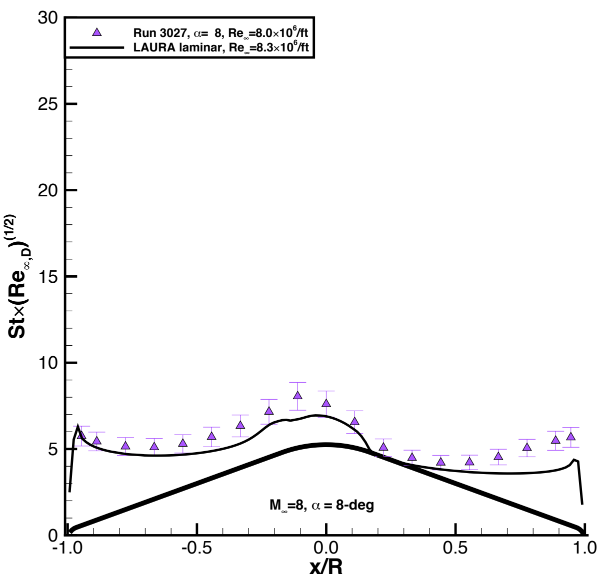
Figure 87. Comparison of predictions to data, Mach = 8 nozzle, $Re_{\infty,AV} = 4\times10^6$/ft, $\alpha = 16°$ to $24°$.



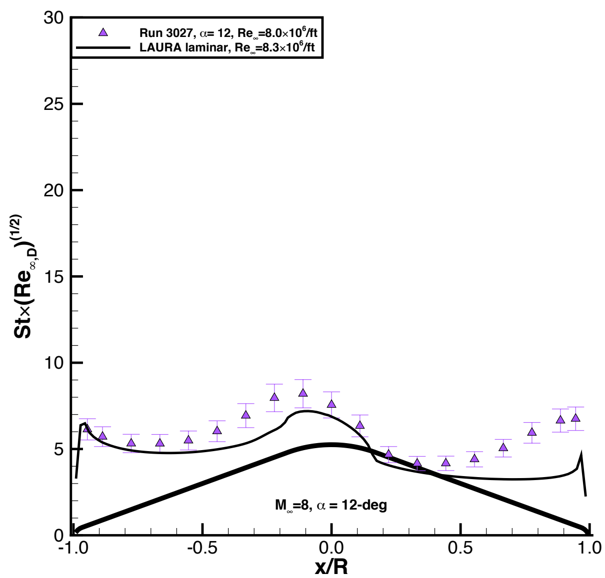
a) Comparison at $\alpha = 0°$



b) Comparison at $\alpha = 4°$

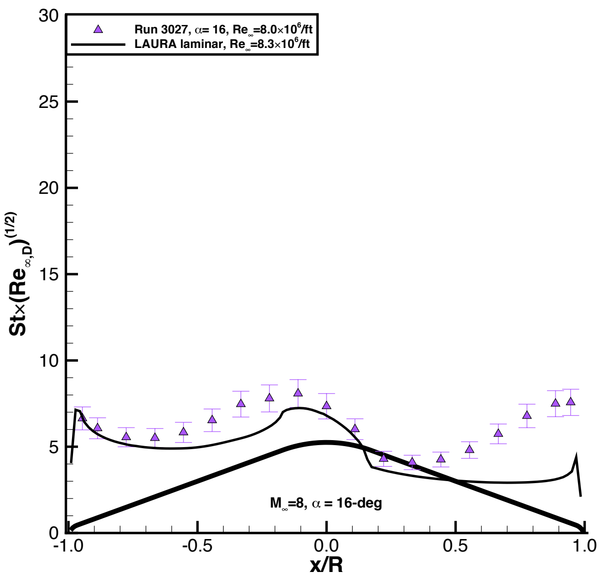


c) Comparison at $\alpha = 8°$

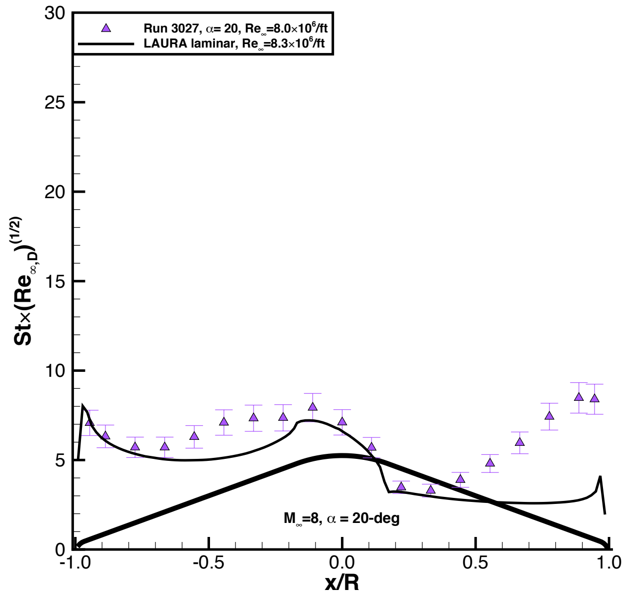


d) Comparison at $\alpha = 12°$

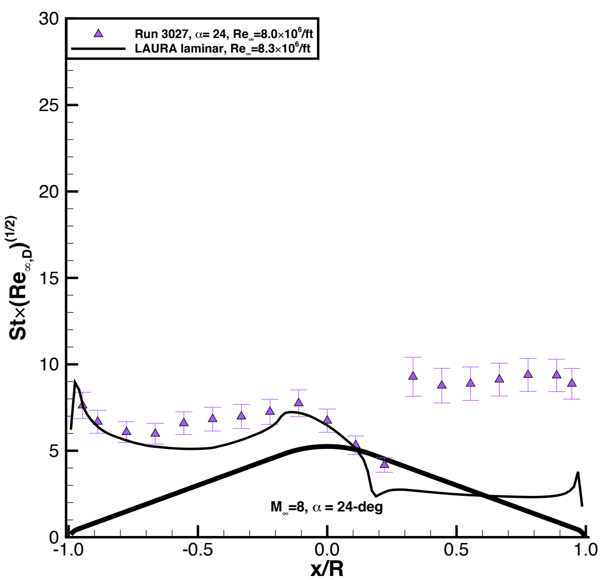
Figure 88. Comparison of predictions to data, Mach = 8 nozzle, $Re_{\infty,AV} = 8\times10^6$/ft, $\alpha = 0°$ to $12°$.



a) Comparison at $\alpha = 16°$

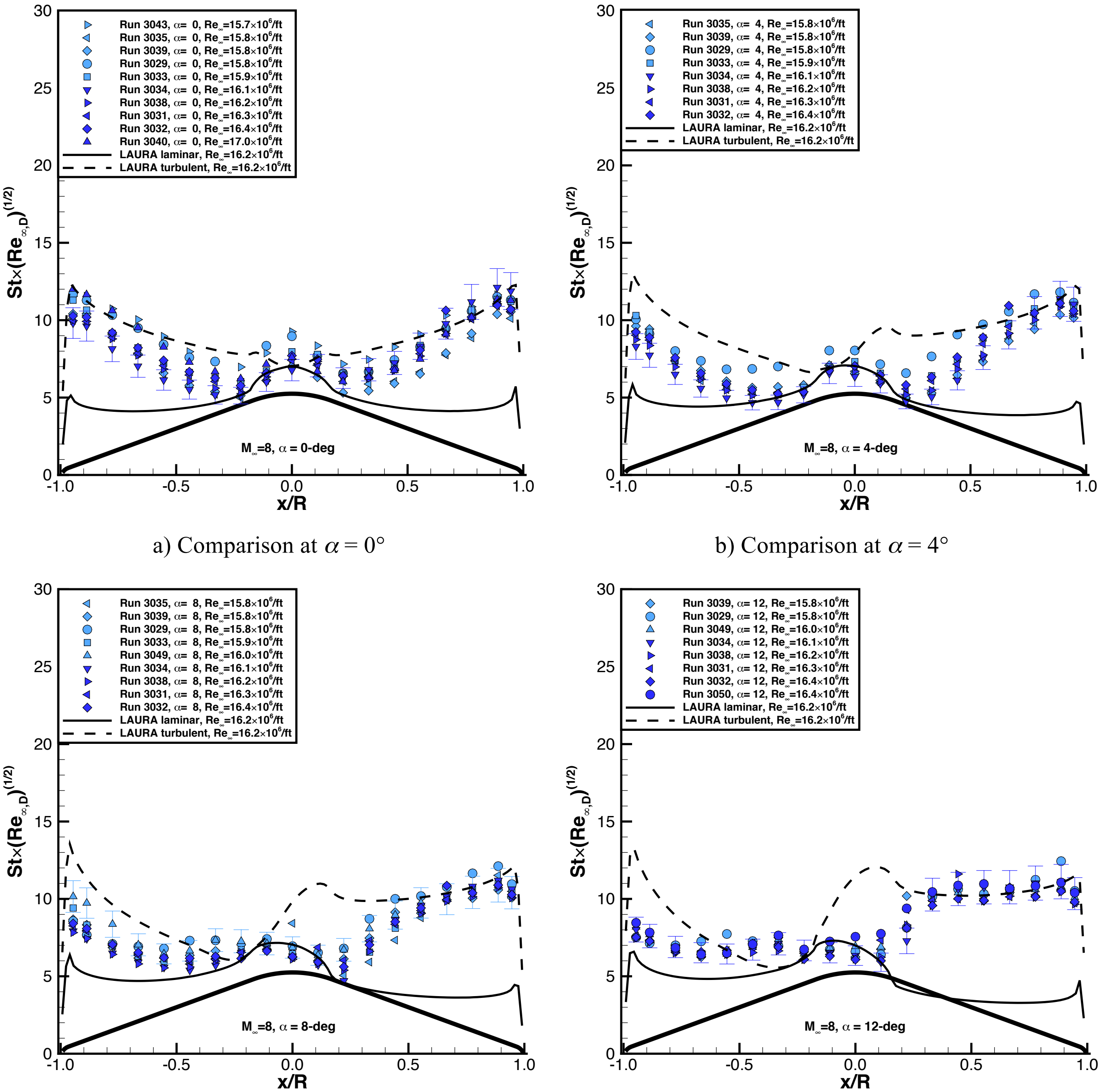


b) Comparison at $\alpha = 20°$



c) Comparison at $\alpha = 24°$

Figure 89. Comparison of predictions to data, Mach = 8 nozzle, $Re_{\infty,AV} = 8\times10^6$/ft, $\alpha = 20°$ to $24°$.



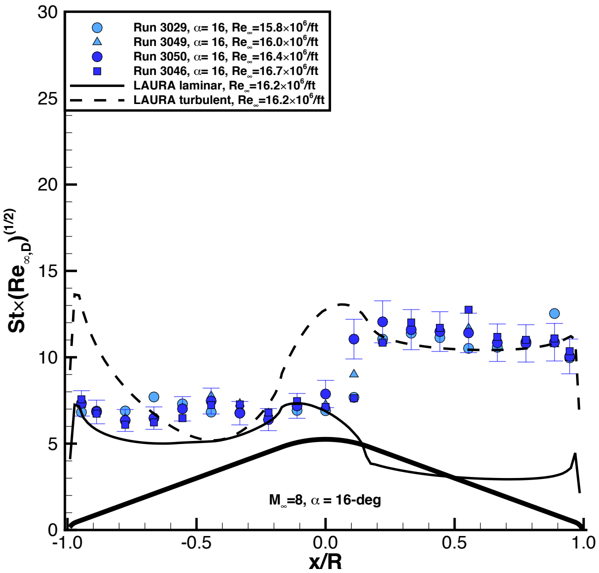
a) Comparison at $\alpha = 0°$

b) Comparison at $\alpha = 4°$

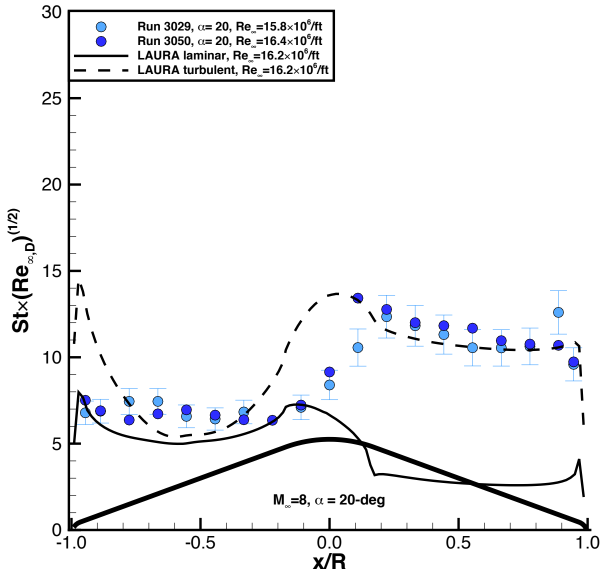
c) Comparison at $\alpha = 8°$

d) Comparison at $\alpha = 12°$

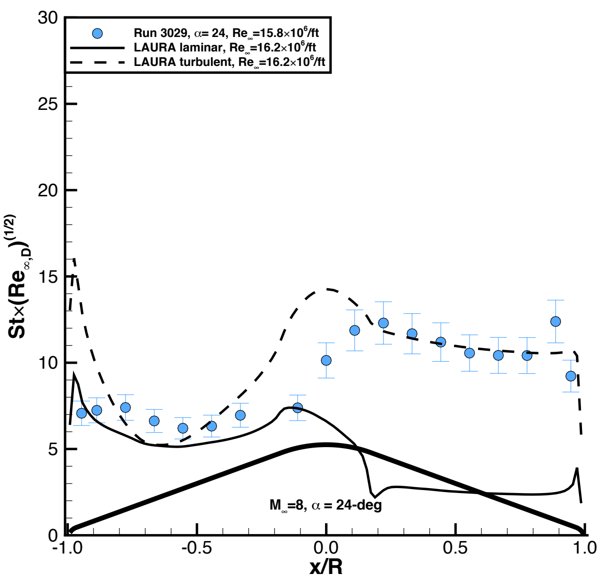
Figure 90. Comparison of predictions to data, Mach = 8 nozzle, $Re_{\infty,AV} = 16\times10^6$/ft, α = 0° to 12°.



a) Comparison at $\alpha = 16°$

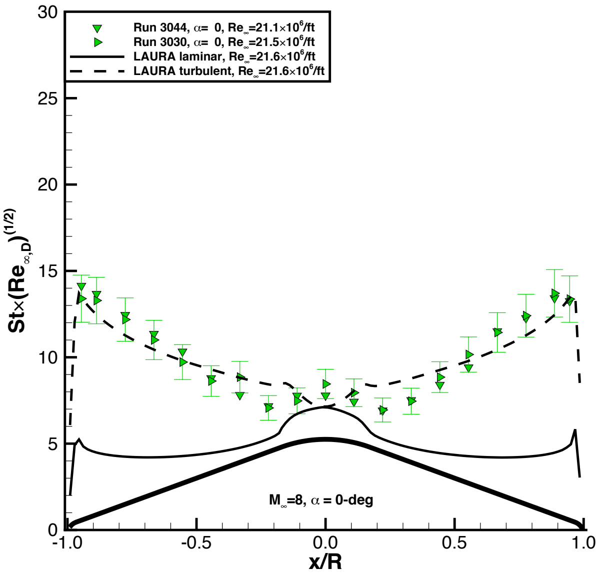


b) Comparison at $\alpha = 20°$

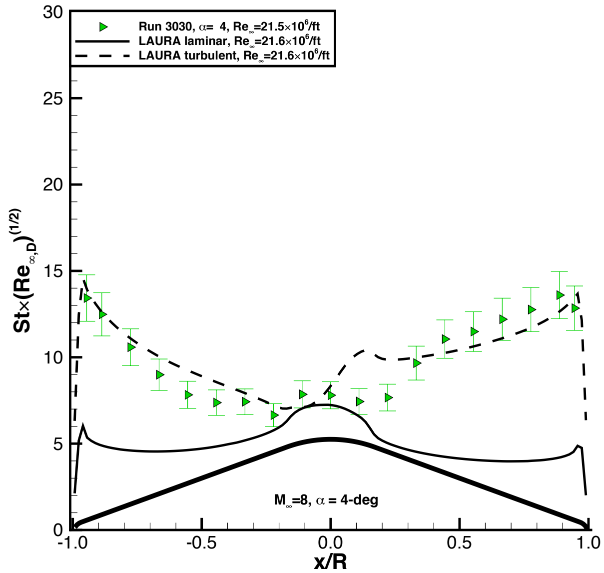


c) Comparison at $\alpha = 24°$

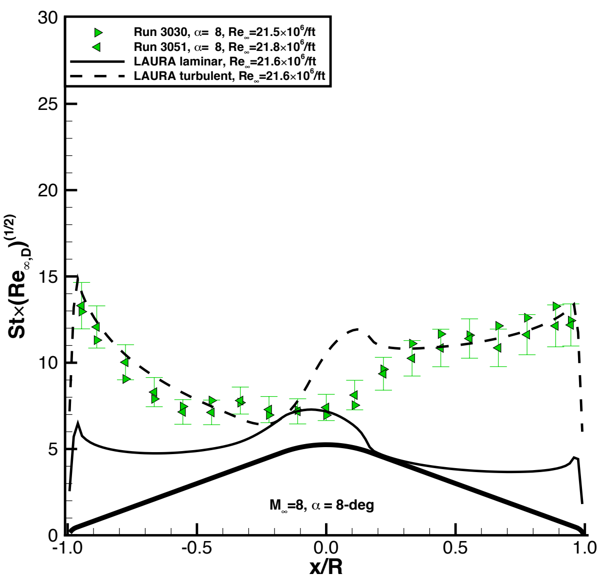
Figure 91. Comparison of predictions to data, Mach = 8 nozzle, $Re_{\infty,AV} = 16\times10^6$/ft, $\alpha = 20°$ to $24°$.



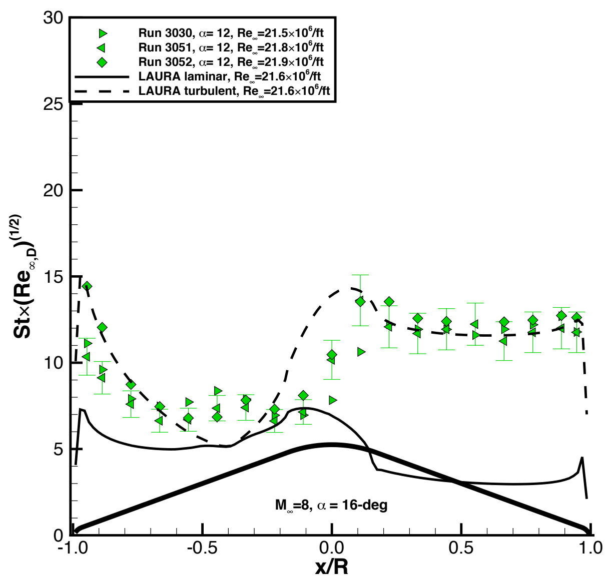
a) Comparison at $\alpha = 0°$



b) Comparison at $\alpha = 4°$

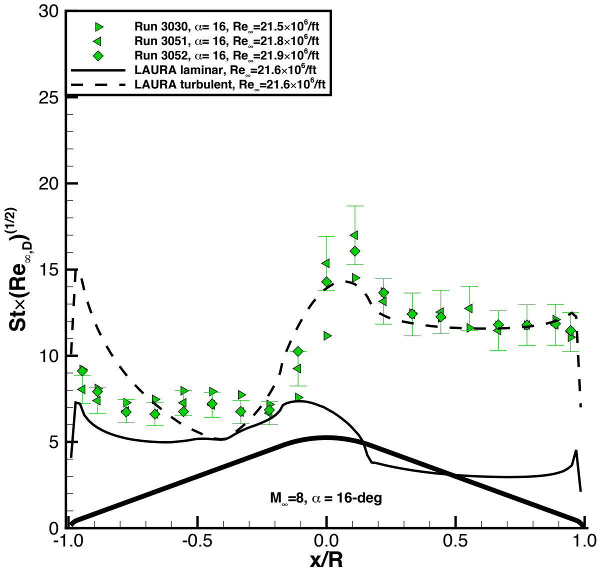


c) Comparison at $\alpha = 8°$

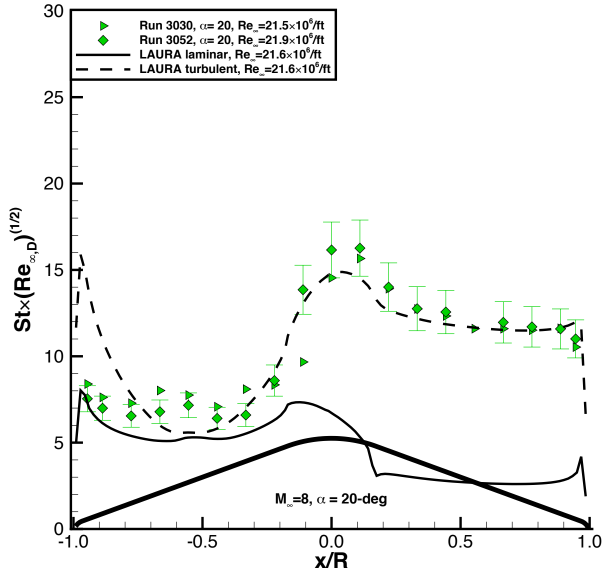


d) Comparison at $\alpha = 12°$

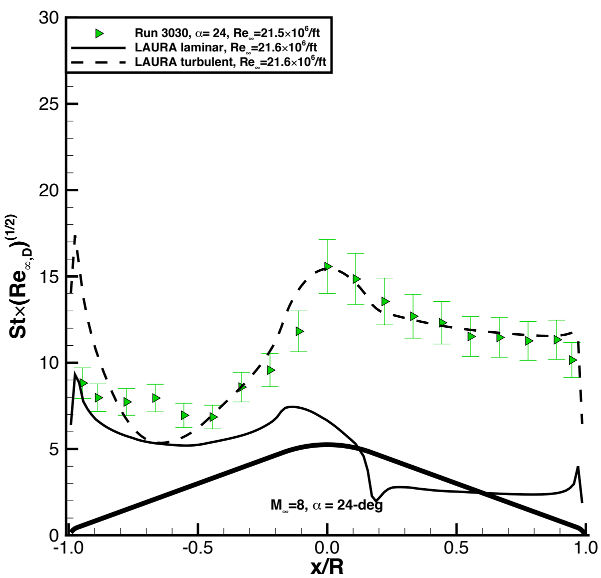
Figure 92. Comparison of predictions to data, Mach = 8 nozzle, $Re_{\infty,AV} = 22 \times 10^6$/ft, $\alpha = 0°$ to 12°.



a) Comparison at $\alpha = 16°$



b) Comparison at $\alpha = 20°$

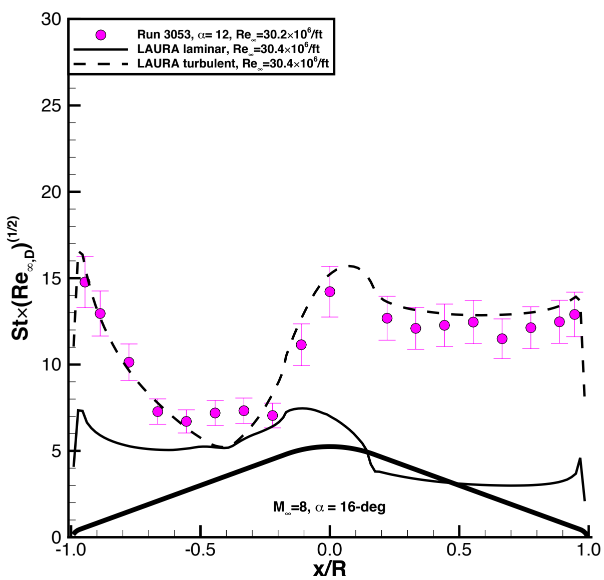


c) Comparison at $\alpha = 24°$

Figure 93. Comparison of predictions to data, Mach = 8 nozzle, $Re_{\infty,AV} = 22\times10^6$/ft, $\alpha = 20°$ to $24°$.

a) $\alpha = 0°$ not tested

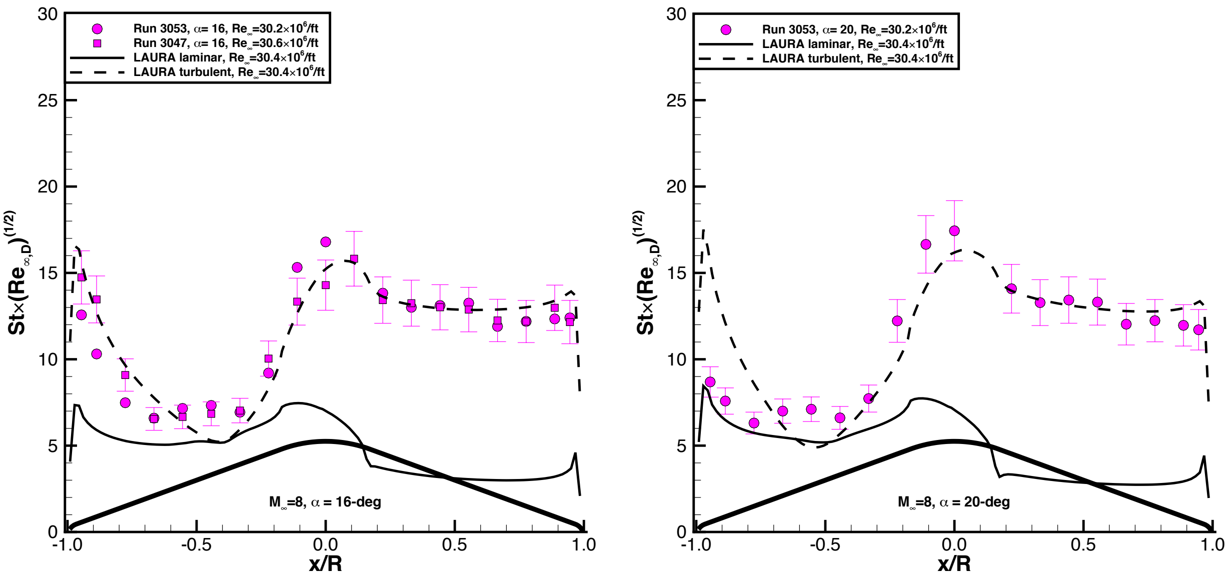
b) $\alpha = 4°$ not tested



c) $\alpha = 8°$ not tested

d) Comparison at $\alpha = 12°$

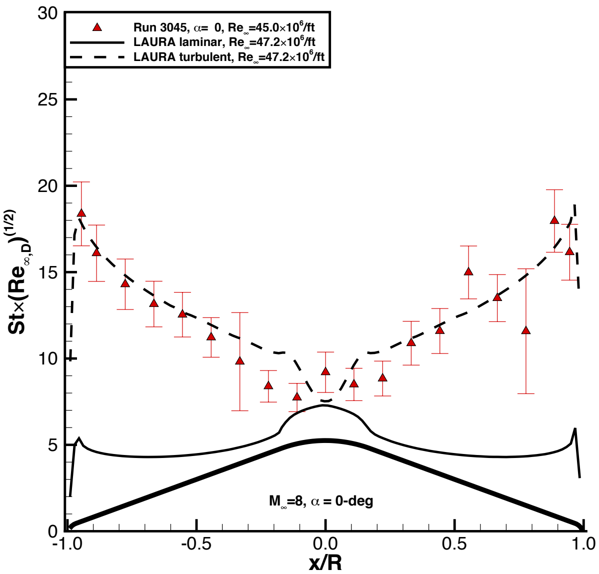
Figure 94. Comparison of predictions to data, Mach = 8 nozzle, $Re_{\infty,AV} = 30\times10^6$/ft, $\alpha = 0°$ to 12°.



a) Comparison at $\alpha = 16°$ b) Comparison at $\alpha = 20°$

c) $\alpha = 24°$ not tested

Figure 95. Comparison of predictions to data, Mach = 8 nozzle, $Re_{\infty,AV} = 30\times10^6$/ft, $\alpha = 16°$ to $24°$.



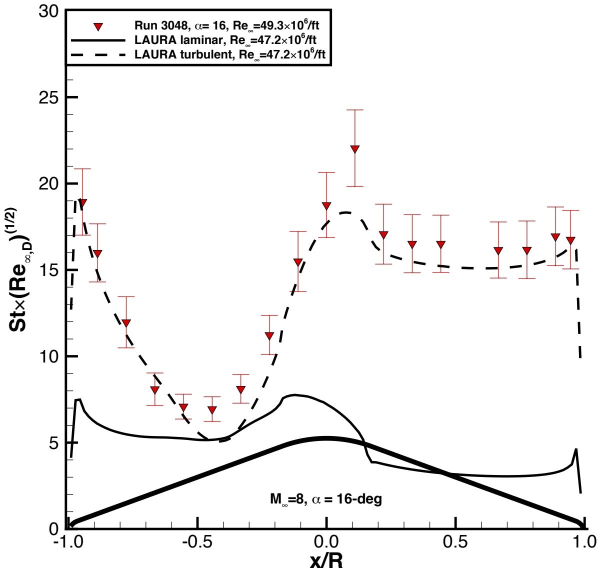
a) Comparison at $\alpha = 0°$

b) $\alpha = 4°$ not tested

c) $\alpha = 8°$ not tested

d) $\alpha = 12°$ not tested

Figure 96. Comparison of predictions to data, Mach = 8 nozzle, $Re_{\infty,AV} = 47\times10^6$/ft, $\alpha = 0°$ to 12°.

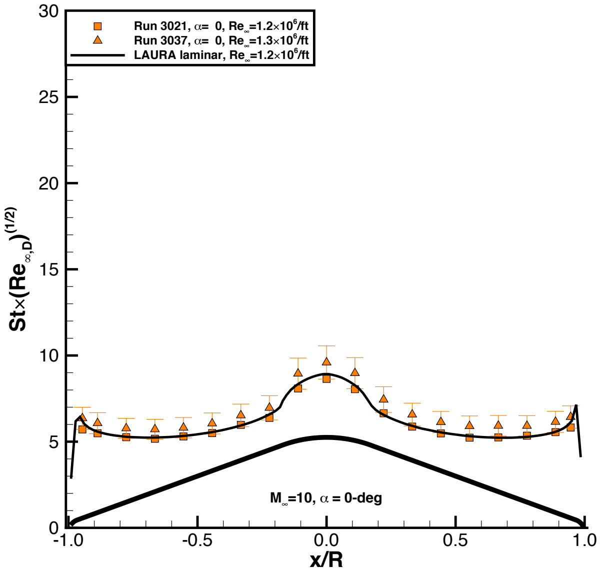


a) Comparison at $\alpha = 16°$

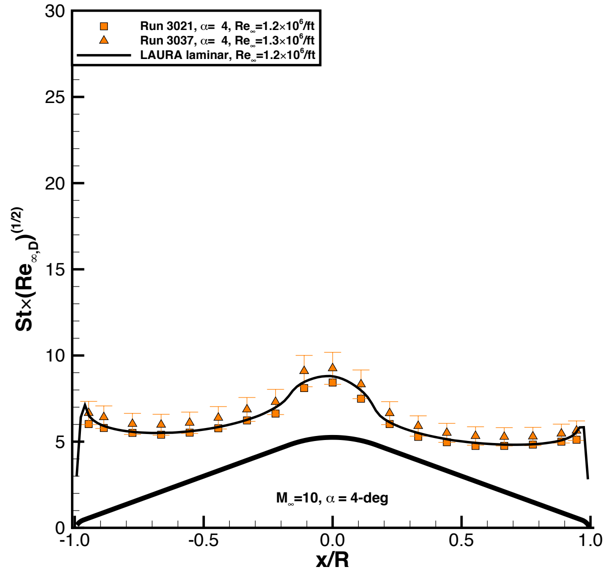
b) $\alpha = 20°$ not tested

c) $\alpha = 24°$ not tested

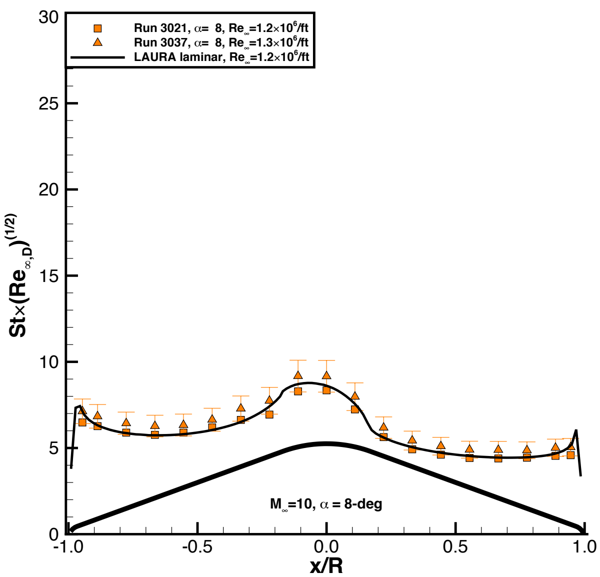
Figure 97. Comparison of predictions to data, Mach = 8 nozzle, $Re_{\infty,AV} = 47\times10^6$/ft, $\alpha = 16°$ to 24°.



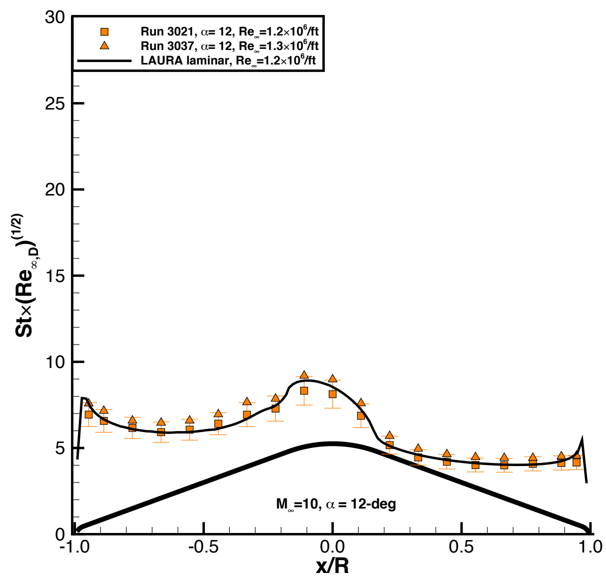
a) Comparison at $\alpha = 0°$



b) Comparison at $\alpha = 4°$

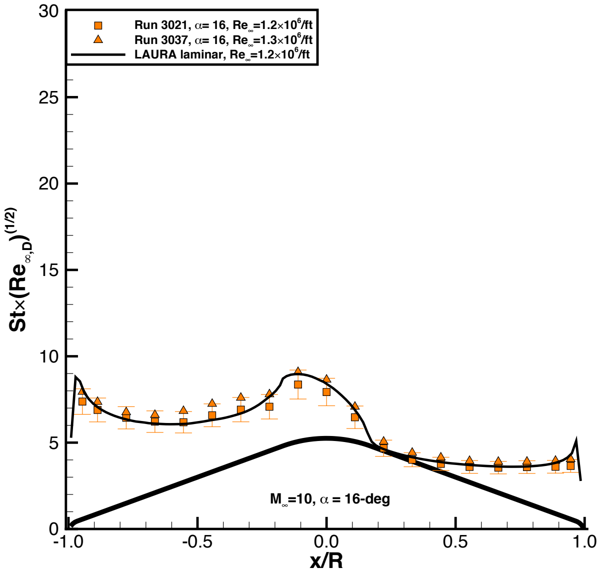


c) Comparison at $\alpha = 8°$

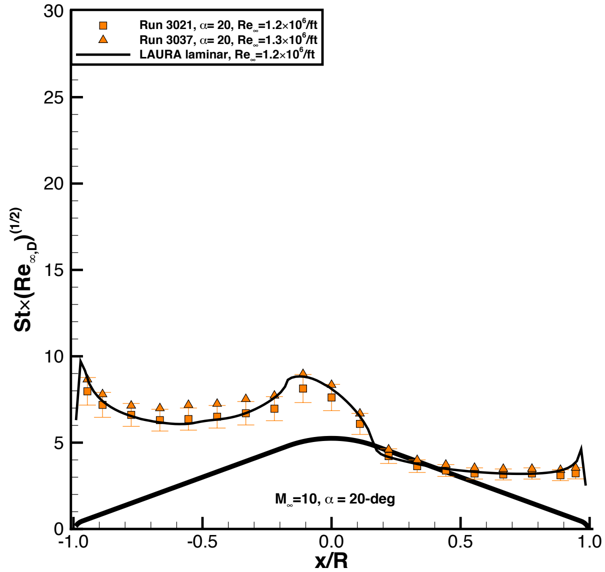


d) Comparison at $\alpha = 12°$

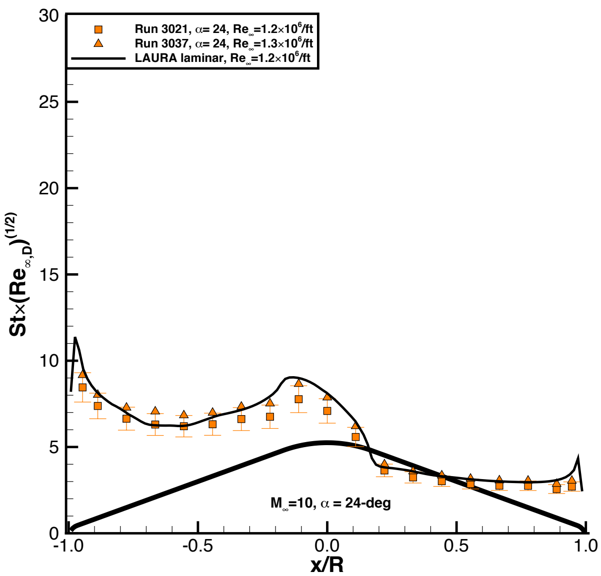
Figure 98. Comparison of predictions to data, Mach = 10 nozzle, $Re_{\infty,AV} = 1\times10^6$/ft, α = 0° to 12°.



a) Comparison at $\alpha = 16°$

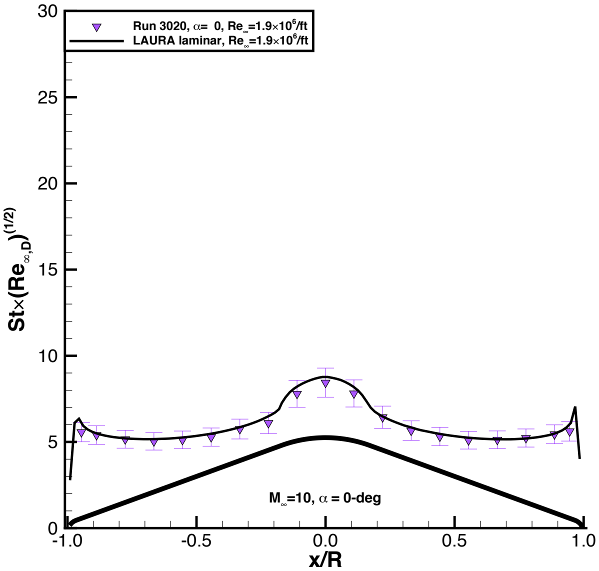


b) Comparison at $\alpha = 20°$

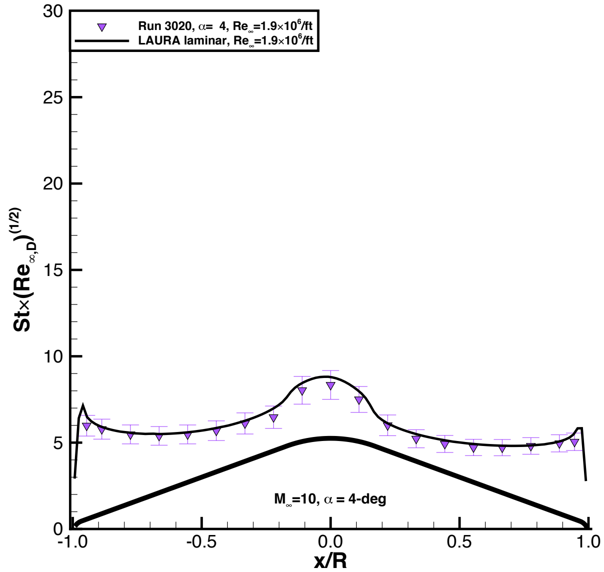


c) Comparison at $\alpha = 24°$

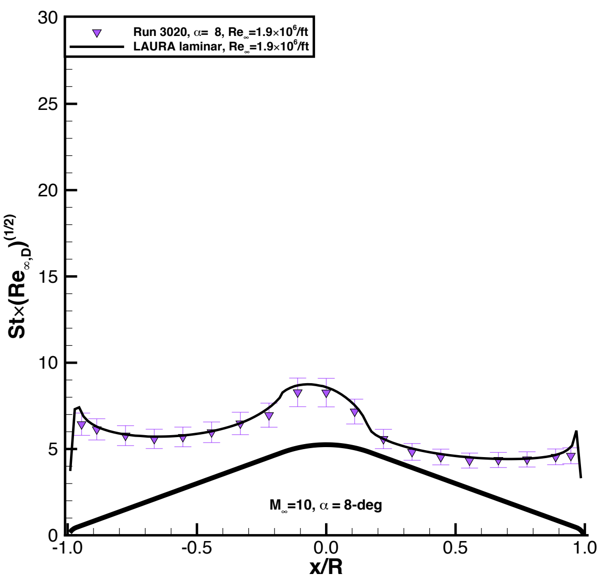
Figure 99. Comparison of predictions to data, Mach = 10 nozzle, $Re_{\infty,AV} = 1\times10^6$/ft, $\alpha = 16°$ to 24°.



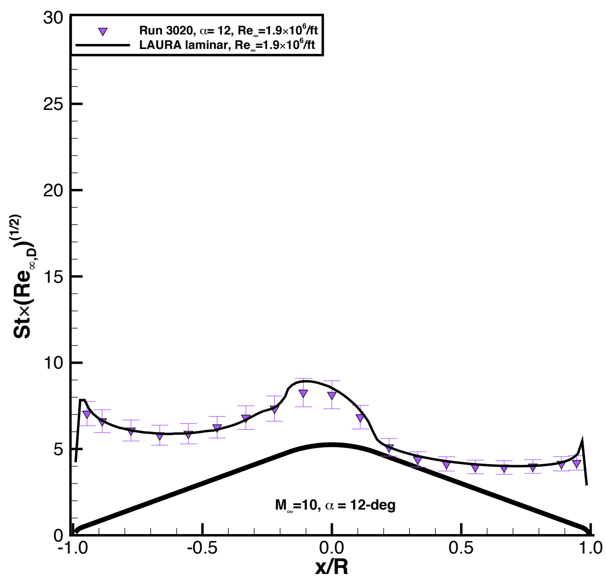
a) Comparison at $\alpha = 0°$



b) Comparison at $\alpha = 4°$

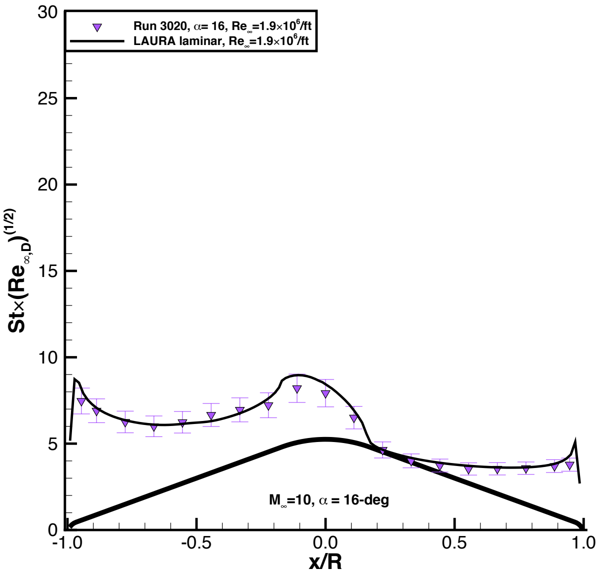


c) Comparison at $\alpha = 8°$

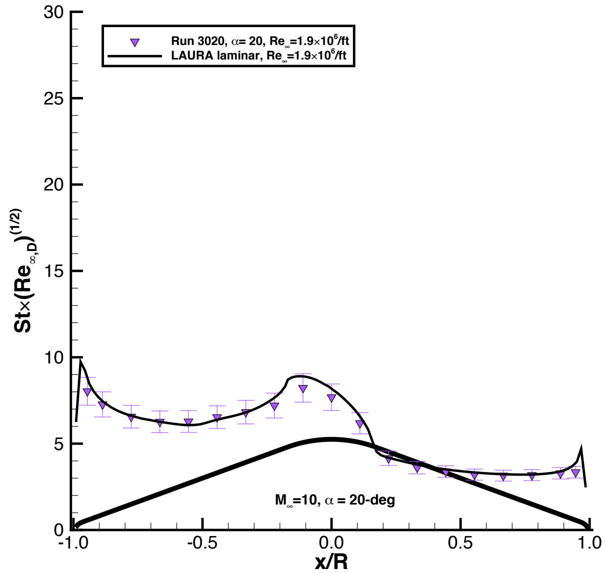


d) Comparison at $\alpha = 12°$

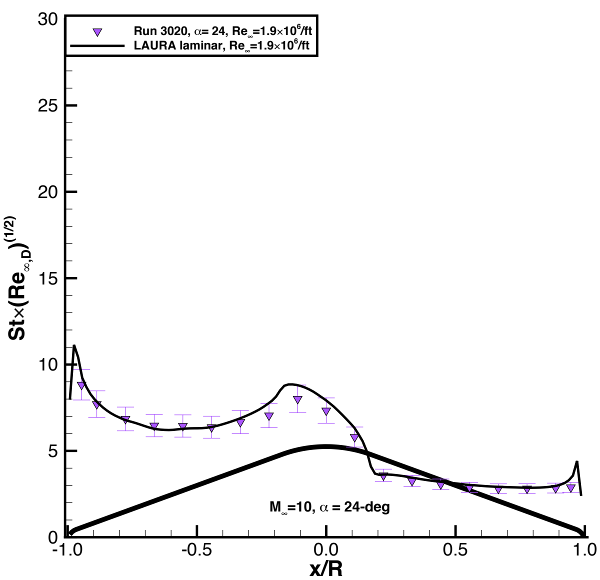
Figure 100. Comparison of predictions to data, Mach = 10 nozzle, $Re_{\infty,AV} = 2\times10^6$/ft, α = 0° to 12°.



a) Comparison at $\alpha = 16°$

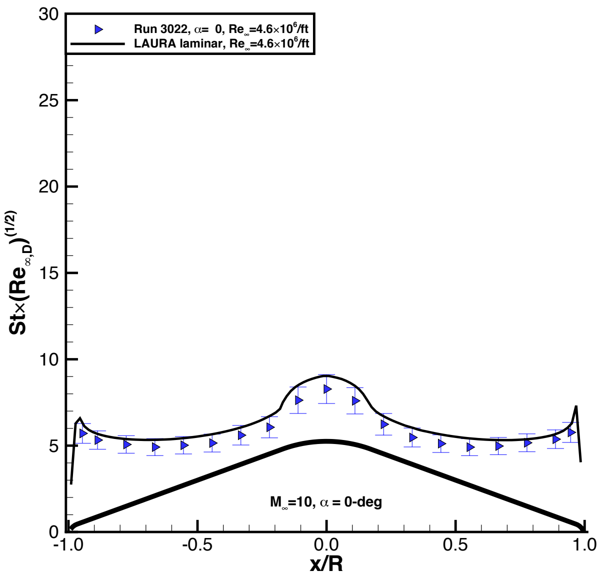


b) Comparison at $\alpha = 20°$

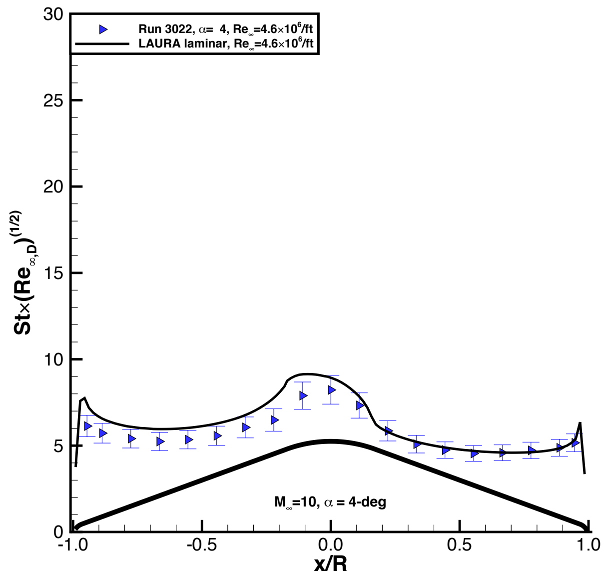


c) Comparison at $\alpha = 24°$

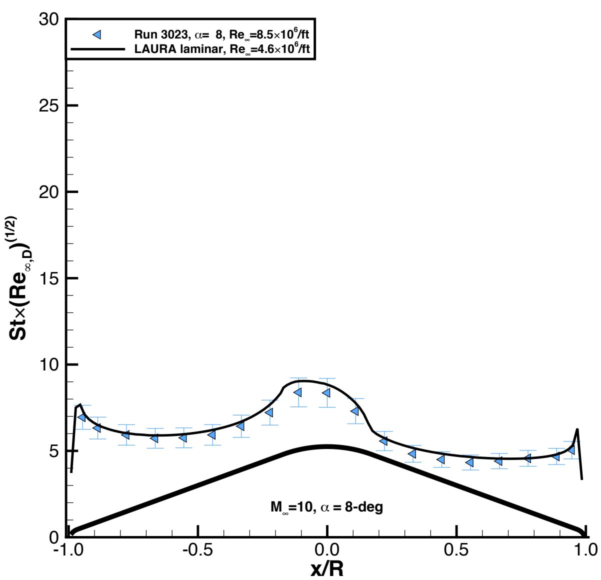
Figure 101. Comparison of predictions to data, Mach = 10 nozzle, $Re_{\infty,AV} = 2\times10^6$/ft, α = 16° to 24°.



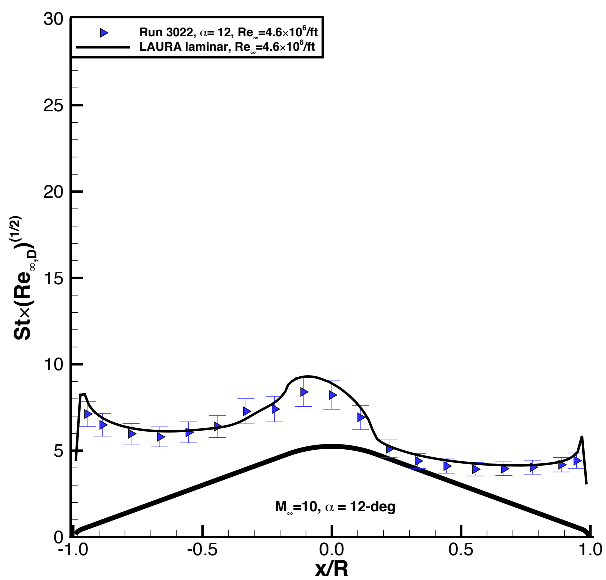
a) Comparison at $\alpha = 0°$



b) Comparison at $\alpha = 4°$

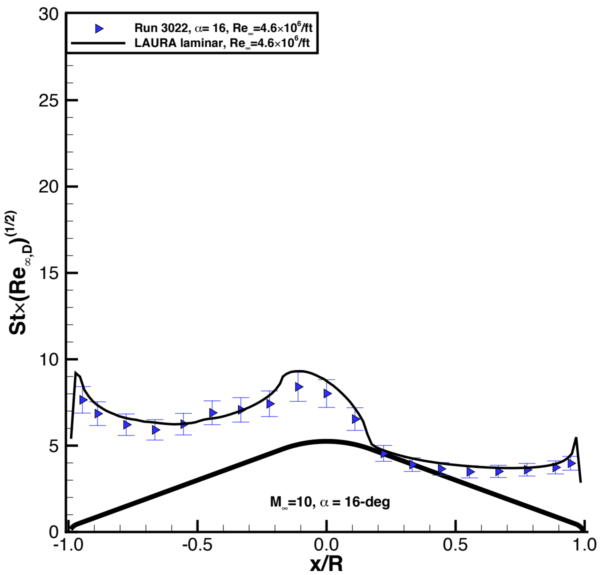


c) Comparison at $\alpha = 8°$

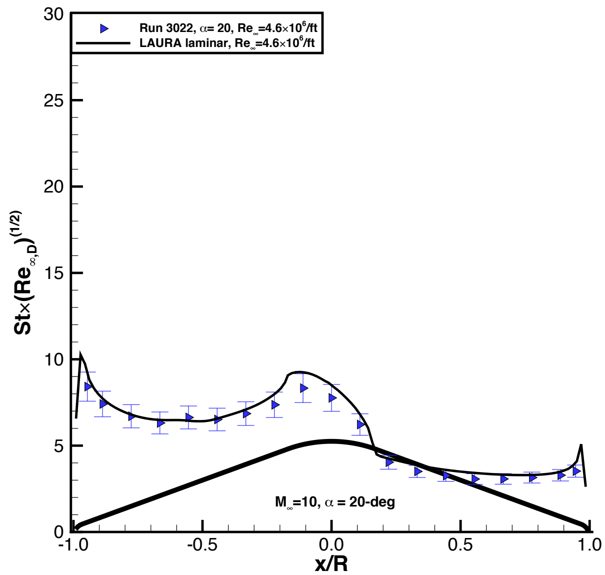


d) Comparison at $\alpha = 12°$

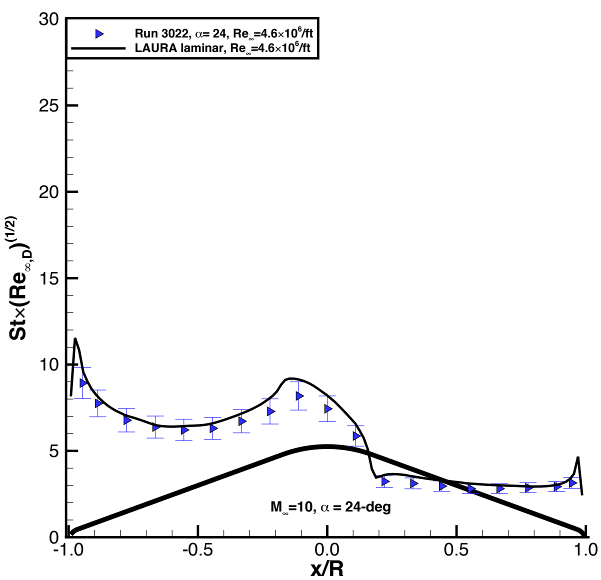
Figure 102. Comparison of predictions to data, Mach = 10 nozzle, $Re_{\infty,AV} = 5\times10^6$/ft, $\alpha = 0°$ to 12°.



a) Comparison at $\alpha = 16°$

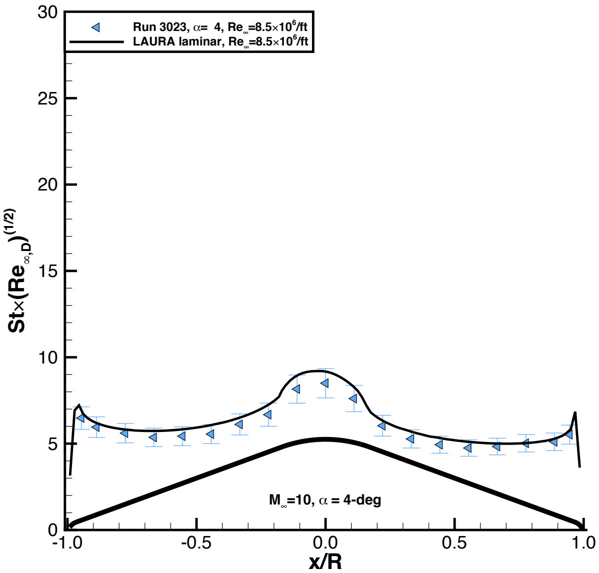


b) Comparison at $\alpha = 20°$

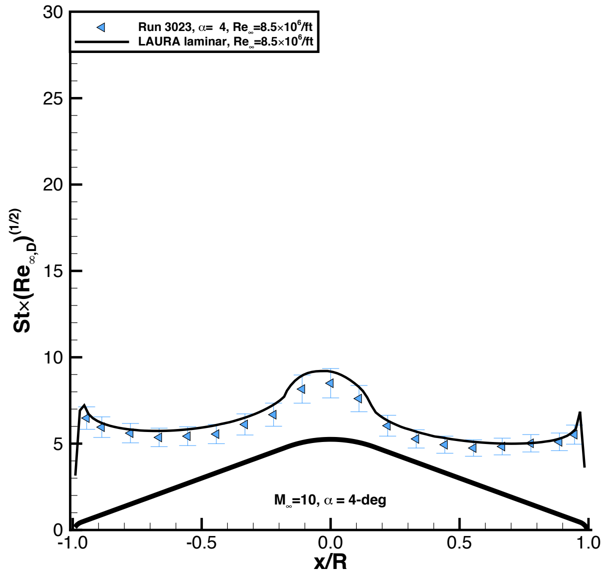


c) Comparison at $\alpha = 24°$

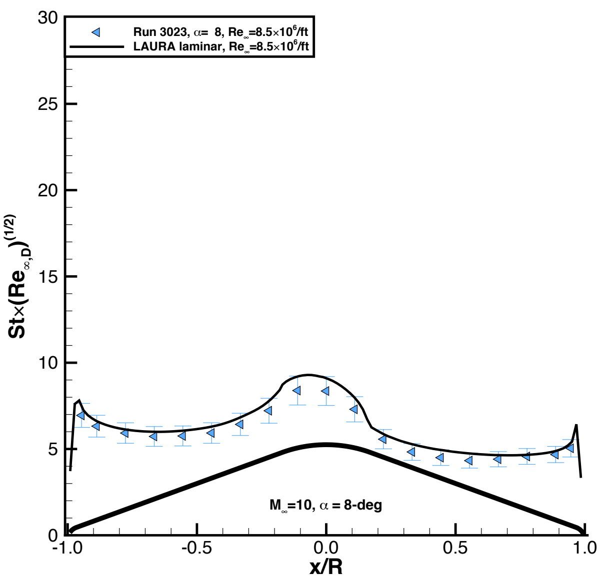
Figure 103. Comparison of predictions to data, Mach = 10 nozzle, $Re_{\infty,AV} = 5{\times}10^6$/ft, α = 16° to 24°.



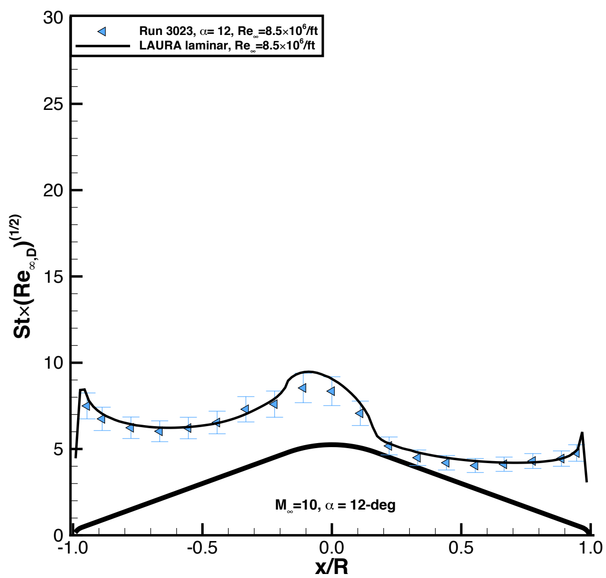
a) Comparison at $\alpha = 0°$



b) Comparison at $\alpha = 4°$

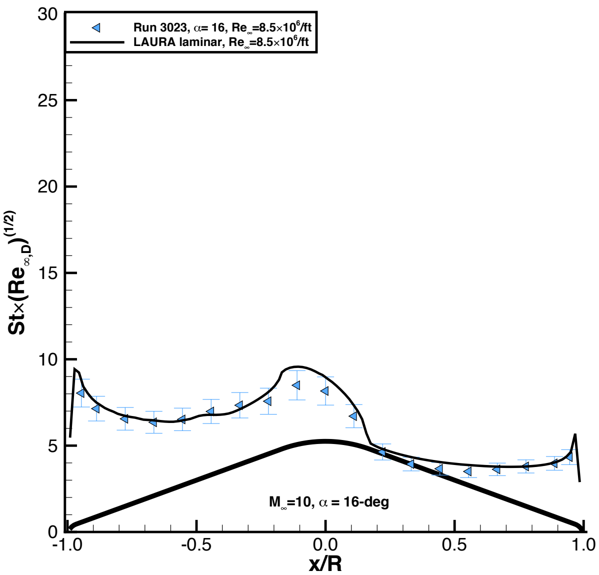


c) Comparison at $\alpha = 8°$

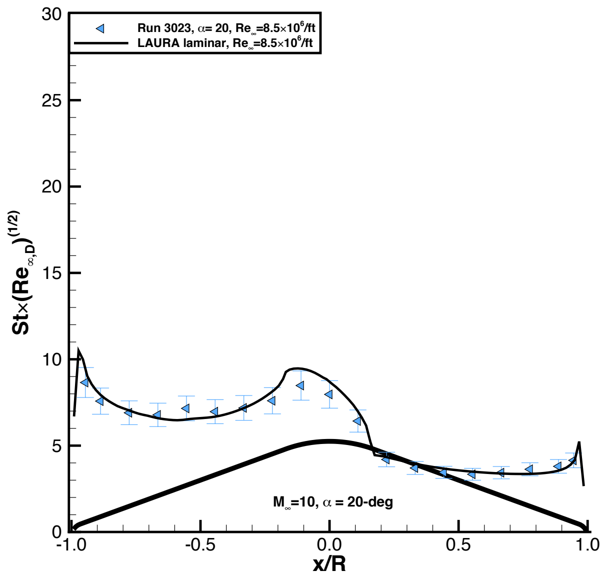


d) Comparison at $\alpha = 12°$

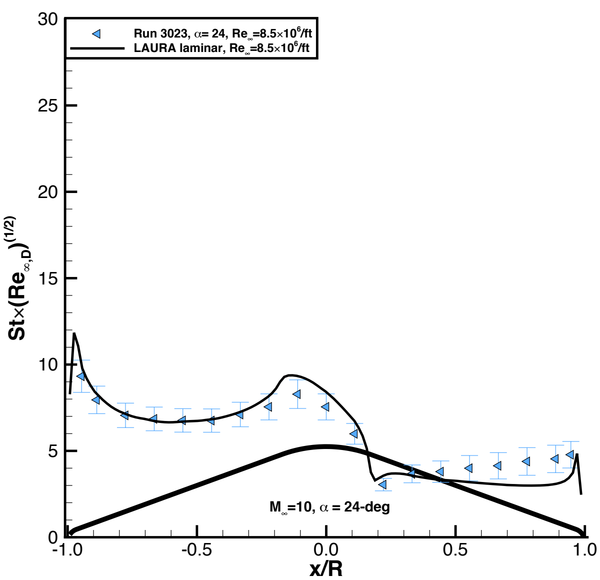
Figure 104. Comparison of predictions to data, Mach = 10 nozzle, $Re_{\infty,AV} = 9\times10^6$/ft, $\alpha = 0°$ to $12°$.



a) Comparison at $\alpha = 16°$

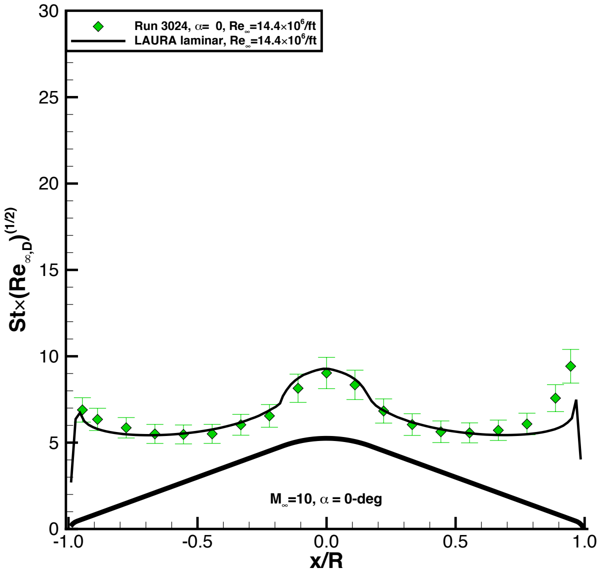


b) Comparison at $\alpha = 20°$

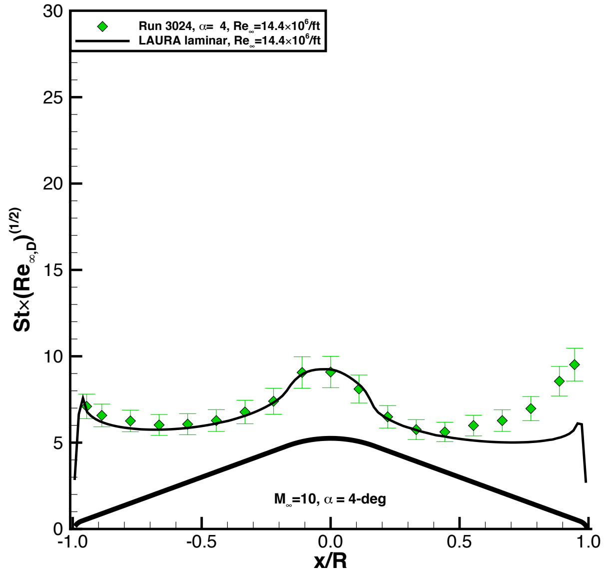


c) Comparison at $\alpha = 24°$

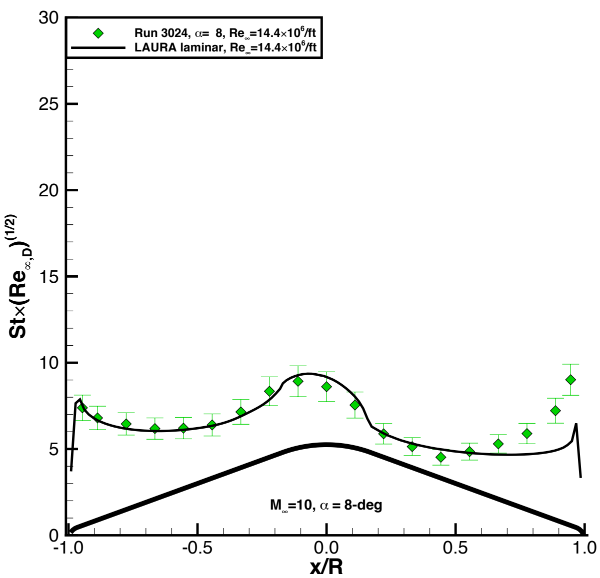
Figure 105. Comparison of predictions to data, Mach = 10 nozzle, $Re_{\infty,AV} = 9\times10^6$/ft, α = 16° to 24°.



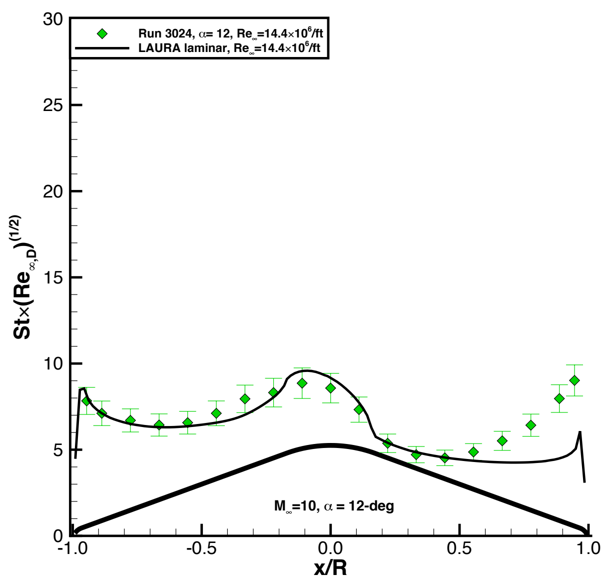
a) Comparison at $\alpha = 0°$



b) Comparison at $\alpha = 4°$

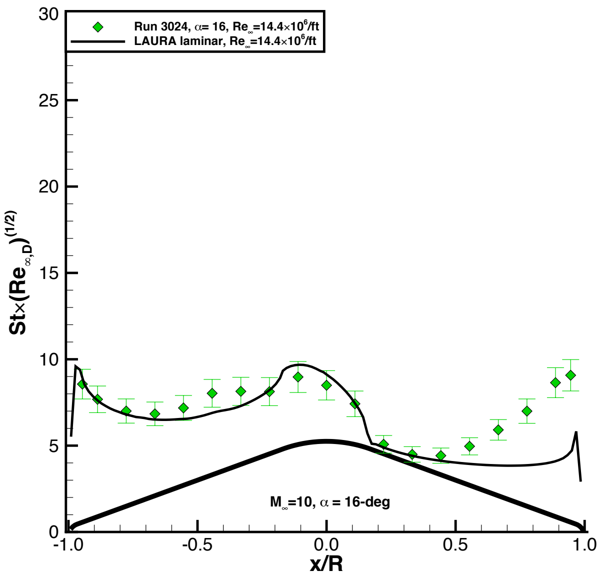


c) Comparison at $\alpha = 8°$

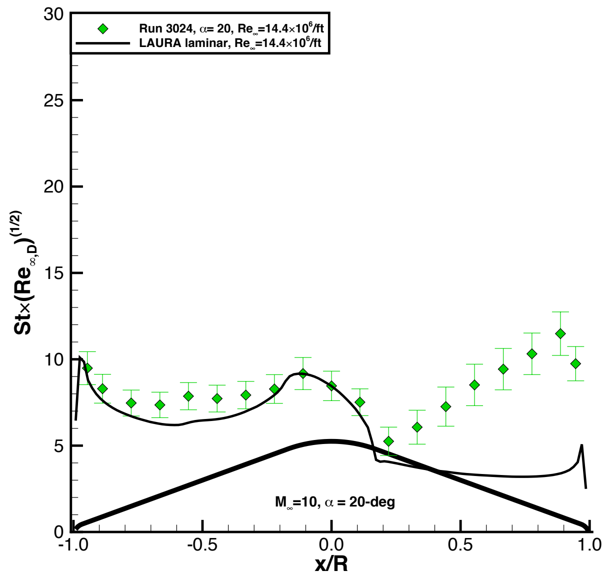


d) Comparison at $\alpha = 12°$

Figure 106. Comparison of predictions to data, Mach = 10 nozzle, $Re_{\infty,AV} = 14\times10^6$/ft, $\alpha = 0°$ to $12°$.



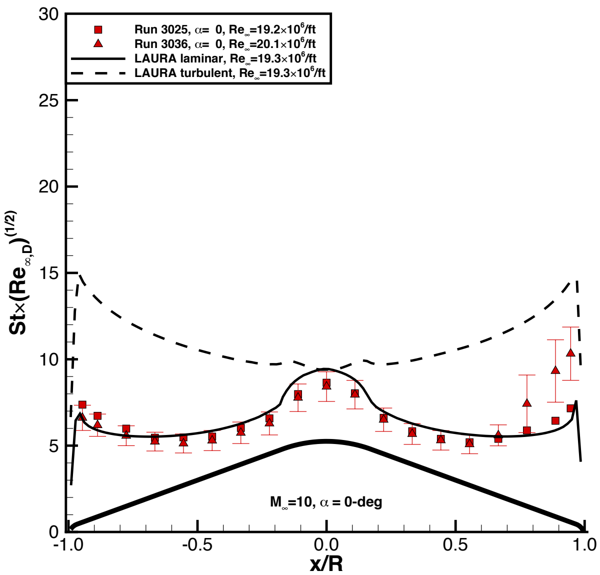
a) Comparison at $\alpha = 16°$



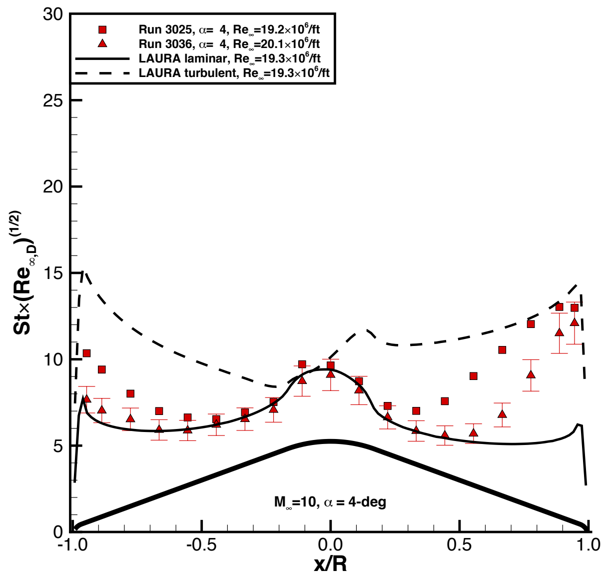
b) Comparison at $\alpha = 20°$

c) $\alpha = 24°$ not tested

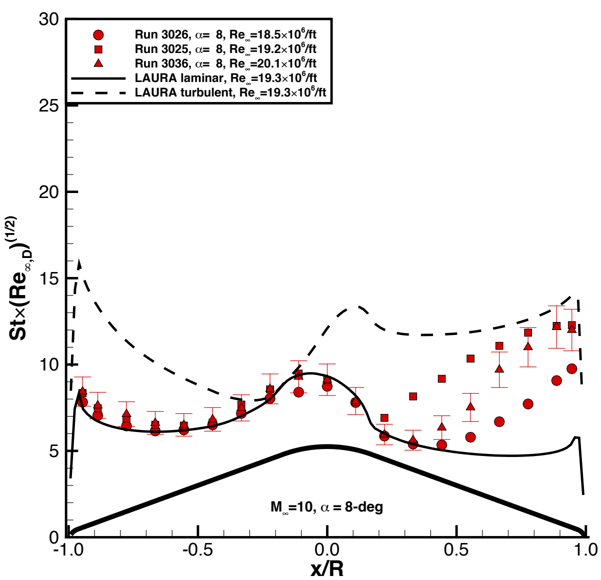
Figure 107. Comparison of predictions to data, Mach = 10 nozzle, $Re_{\infty,AV} = 14\times10^6$/ft, $\alpha = 16°$ to 24°.



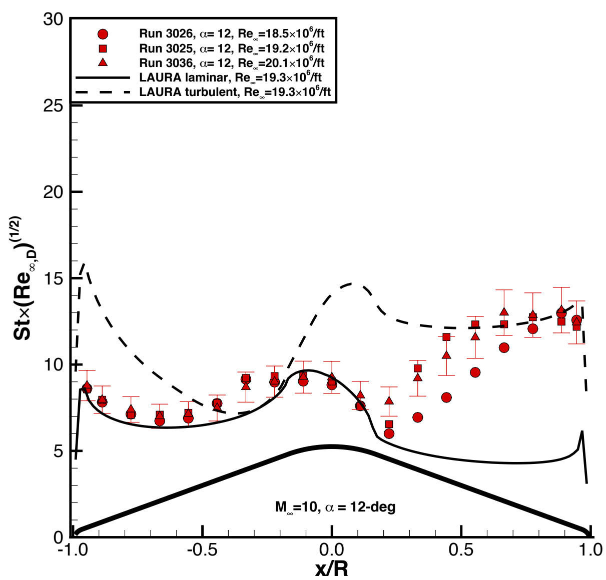
a) Comparison at $\alpha = 0°$



b) Comparison at $\alpha = 4°$

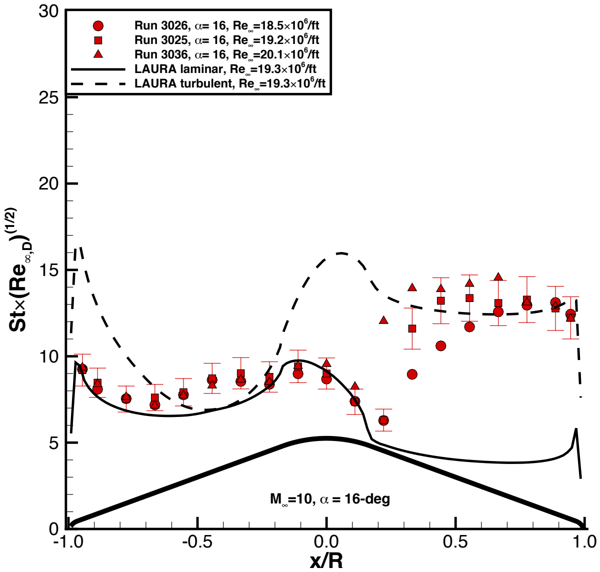


c) Comparison at $\alpha = 8°$

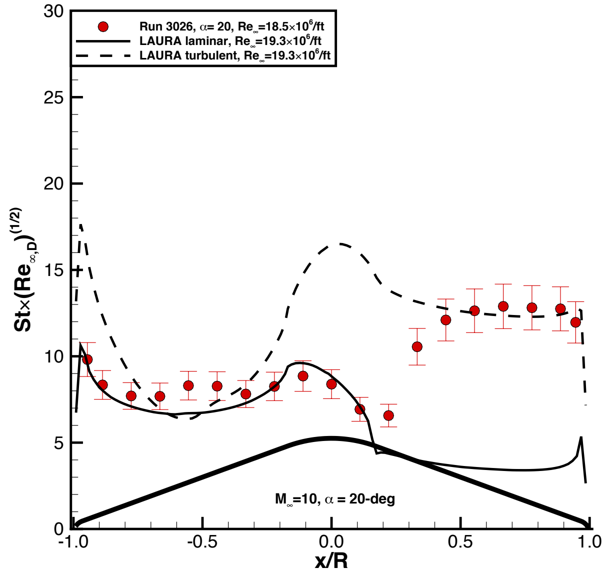


d) Comparison at $\alpha = 12°$

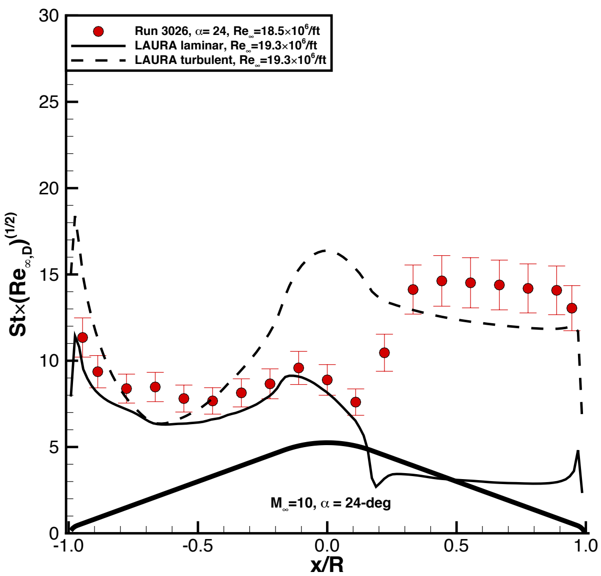
Figure 108. Comparison of predictions to data, Mach = 10 nozzle, $Re_{\infty,AV} = 19\times10^6$/ft, $\alpha = 0°$ to 12°.



a) Comparison at $\alpha = 16°$



b) Comparison at $\alpha = 20°$



c) Comparison at $\alpha = 24°$

Figure 109. Comparison of predictions to data, Mach = 10 nozzle, $Re_{\infty,AV} = 19\times10^6$/ft, $\alpha = 16°$ to $24°$.

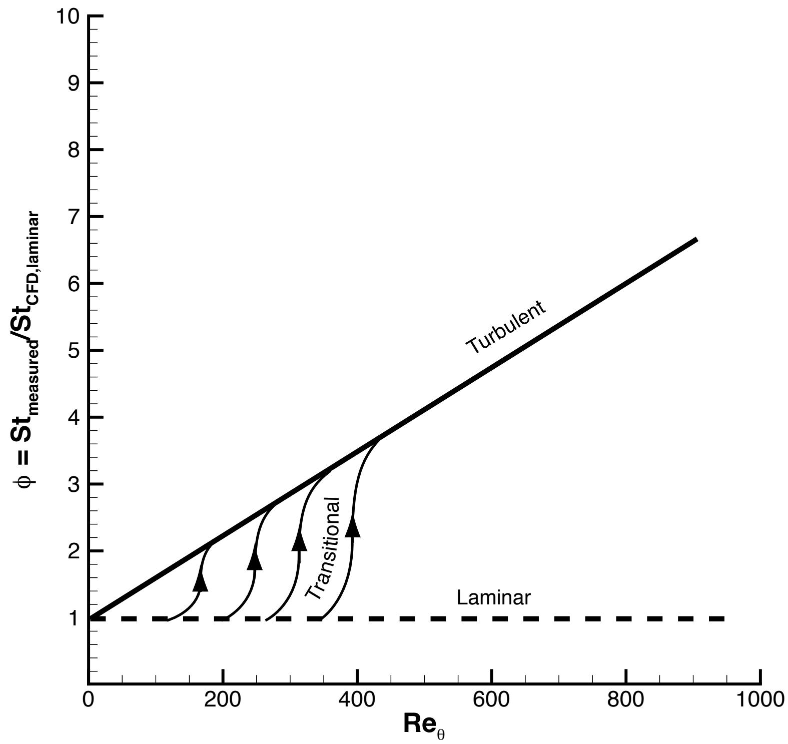


Figure 110. Format of smooth-wall turbulent heating augmentation and transition onset correlation.

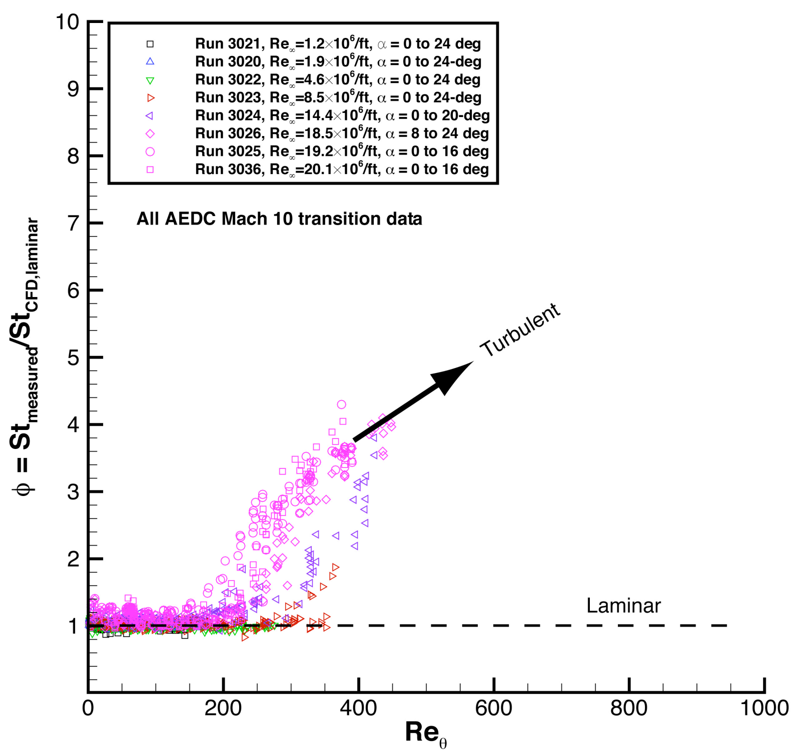


Figure 111. Correlation of turbulent heating augmentation and transition Onset: AEDC Mach 10 MSL data.

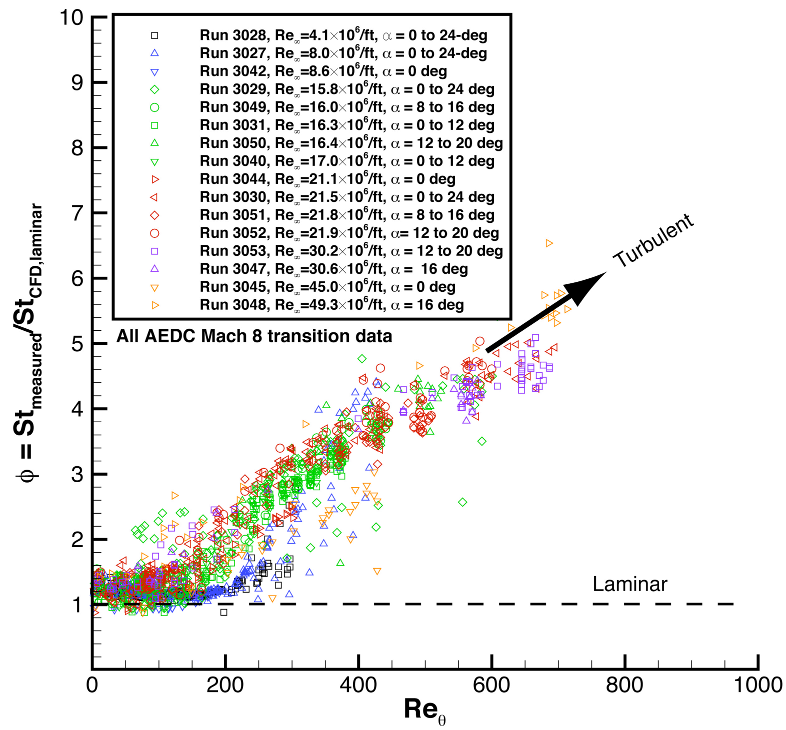


Figure 112. Correlation of turbulent heating augmentation and transition onset: AEDC Mach 8 MSL data.

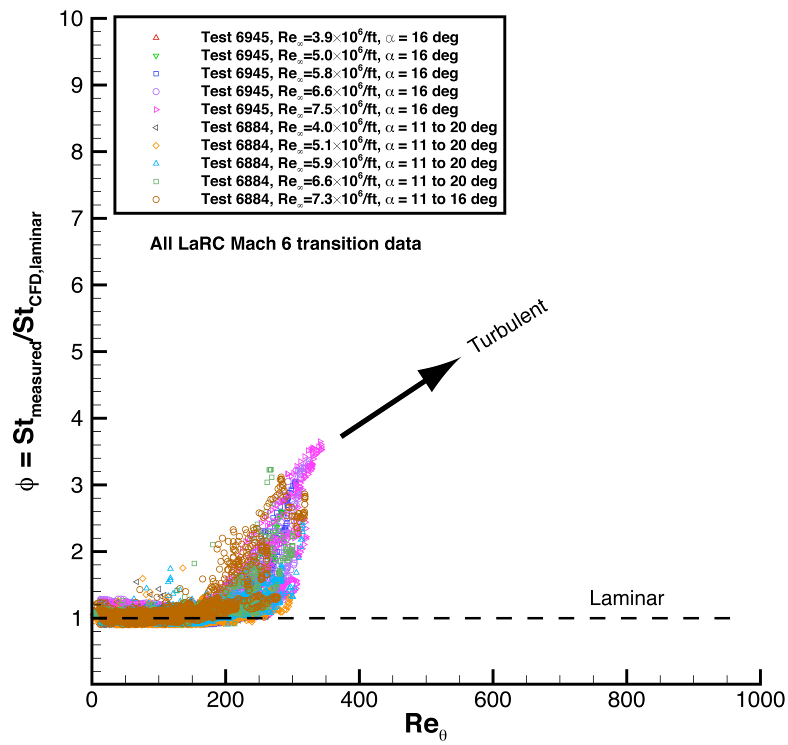


Figure 113. Correlation of turbulent heating augmentation and transition onset: LaRC Mach 6 MSL data.

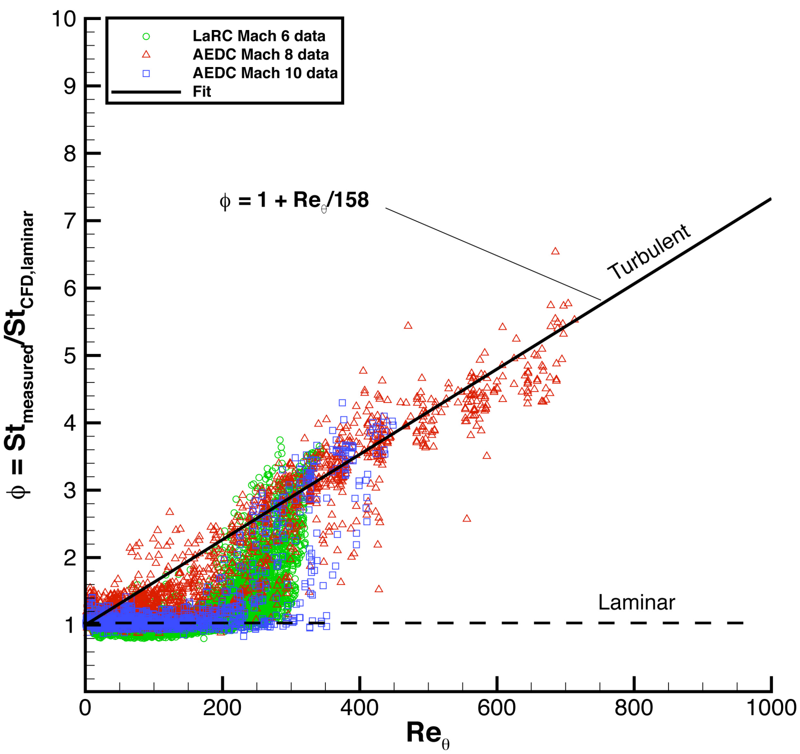


Figure 114. Correlation of turbulent heating augmentation and transition onset: AEDC and LaRC MSL data.

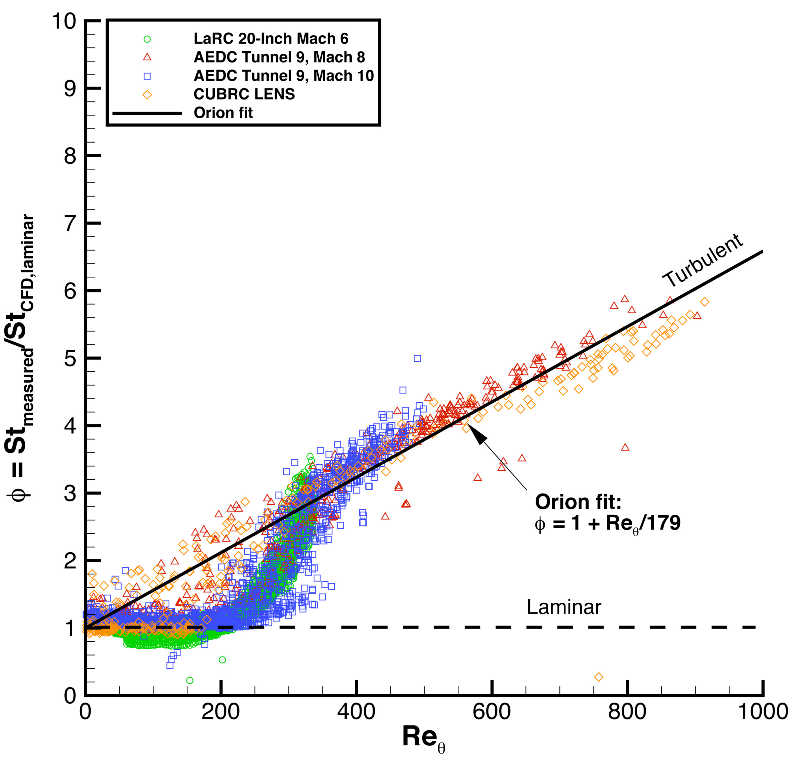
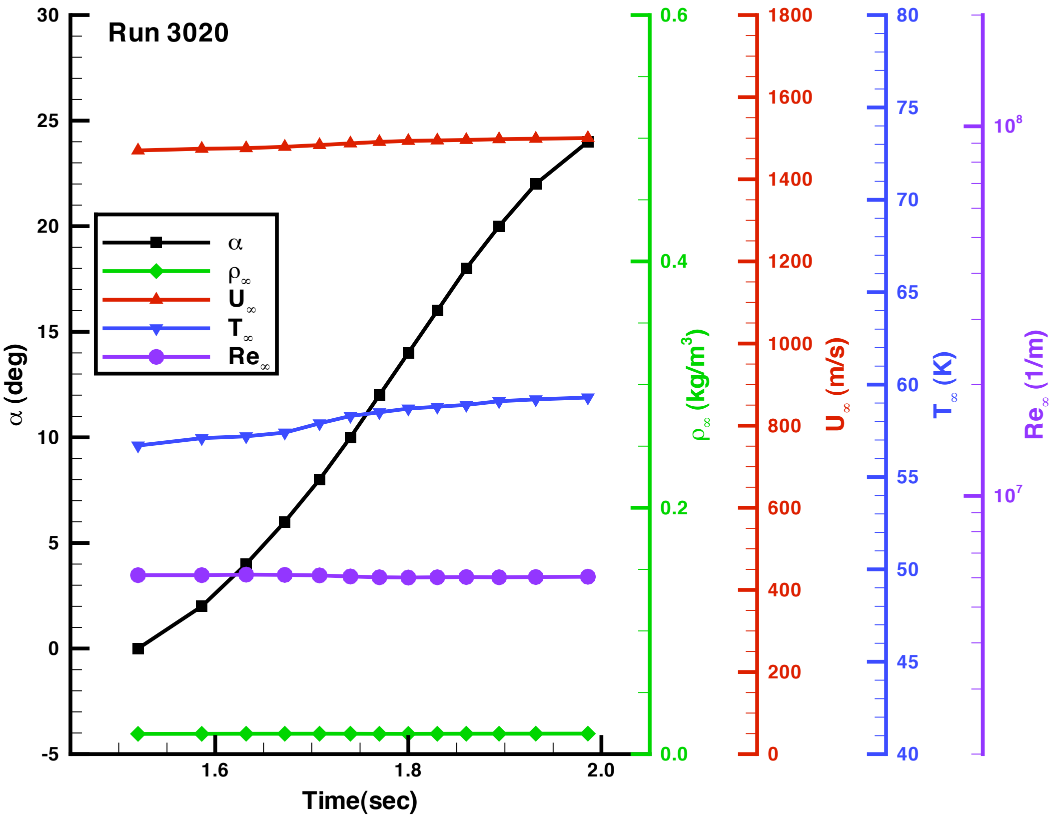


Figure 115. Correlation of turbulent heating augmentation and transition onset data for Orion capsule.

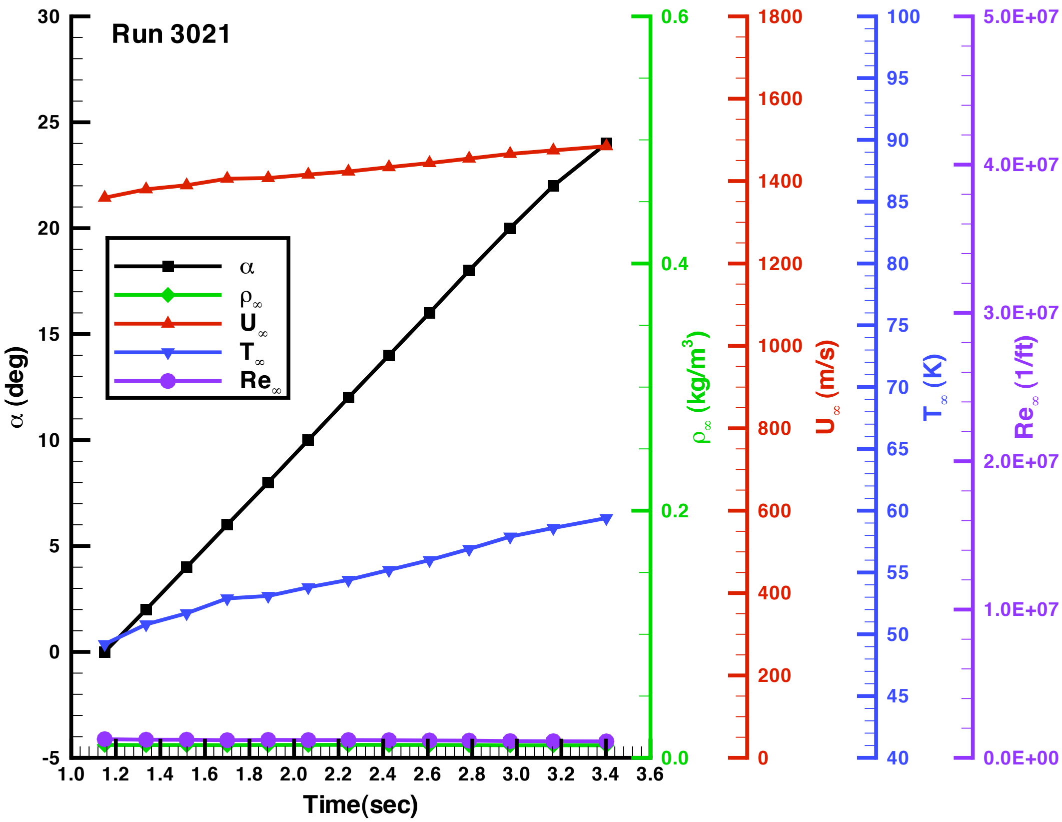
Appendix A: Tabulated Flow Conditions

Flow conditions from this test series are listed in this Appendix in Figure A - 1 through Figure A - 33 as both line-lots and data tabulations. Data points are provided for 2° increments for those runs performed with continuous pitch-sweep and at multiple times for static angle of attack cases.



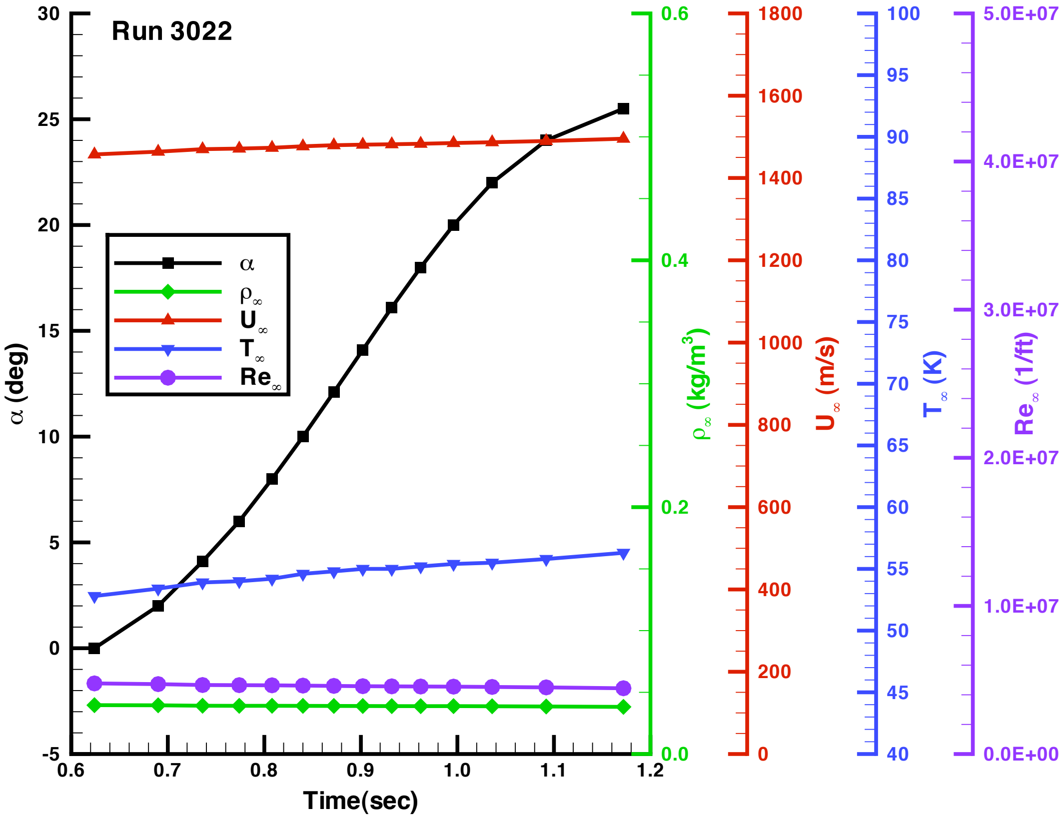
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
1.520	0.0	1.86E+06	6.10E+06	9.57	2.768E+02	56.7	1.642E-02	1470.2	7.679E+05
1.586	2.0	1.86E+06	6.10E+06	9.56	2.794E+02	57.1	1.648E-02	1474.3	7.740E+05
1.632	4.0	1.86E+06	6.12E+06	9.57	2.806E+02	57.2	1.652E-02	1475.8	7.761E+05
1.672	6.0	1.86E+06	6.11E+06	9.57	2.820E+02	57.4	1.653E-02	1479.1	7.810E+05
1.708	8.0	1.86E+06	6.09E+06	9.56	2.844E+02	57.9	1.655E-02	1483.3	7.872E+05
1.740	10.0	1.85E+06	6.05E+06	9.55	2.858E+02	58.3	1.652E-02	1487.4	7.933E+05
1.770	12.0	1.84E+06	6.02E+06	9.56	2.859E+02	58.5	1.646E-02	1491.0	7.987E+05
1.800	14.0	1.83E+06	6.01E+06	9.56	2.865E+02	58.7	1.644E-02	1493.5	8.023E+05
1.830	16.0	1.84E+06	6.02E+06	9.56	2.880E+02	58.8	1.650E-02	1494.6	8.040E+05
1.860	18.0	1.84E+06	6.03E+06	9.55	2.895E+02	58.9	1.654E-02	1495.7	8.057E+05
1.894	20.0	1.84E+06	6.02E+06	9.55	2.906E+02	59.1	1.656E-02	1497.6	8.086E+05
1.932	22.0	1.84E+06	6.03E+06	9.55	2.917E+02	59.2	1.659E-02	1498.7	8.101E+05
1.986	24.0	1.84E+06	6.04E+06	9.55	2.931E+02	59.3	1.663E-02	1500.4	8.127E+05

Figure A - 1. Run 3020 flow conditions.



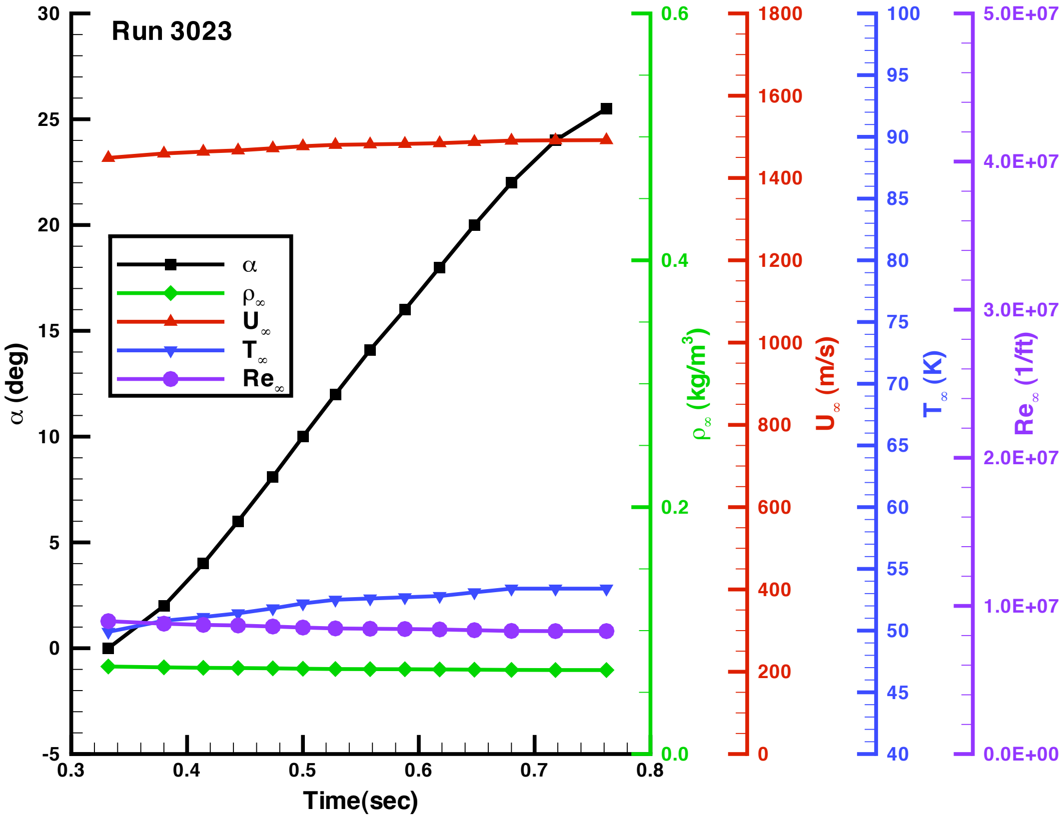
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
1.150	0.0	1.26E+06	4.14E+06	9.50	1.528E+02	49.2	1.046E-02	1359.6	6.115E+05
1.336	2.0	1.22E+06	4.02E+06	9.49	1.558E+02	50.8	1.033E-02	1380.1	6.397E+05
1.518	4.0	1.22E+06	4.00E+06	9.48	1.596E+02	51.7	1.040E-02	1389.9	6.532E+05
1.700	6.0	1.19E+06	3.91E+06	9.47	1.617E+02	52.9	1.028E-02	1405.8	6.754E+05
1.884	8.0	1.21E+06	3.96E+06	9.47	1.643E+02	53.1	1.042E-02	1407.4	6.776E+05
2.064	10.0	1.20E+06	3.95E+06	9.46	1.671E+02	53.8	1.046E-02	1415.8	6.895E+05
2.244	12.0	1.20E+06	3.93E+06	9.46	1.695E+02	54.4	1.049E-02	1423.2	6.999E+05
2.426	14.0	1.19E+06	3.89E+06	9.46	1.713E+02	55.2	1.045E-02	1433.8	7.150E+05
2.608	16.0	1.17E+06	3.85E+06	9.46	1.727E+02	56.0	1.039E-02	1443.7	7.293E+05
2.786	18.0	1.16E+06	3.80E+06	9.46	1.749E+02	56.9	1.036E-02	1454.6	7.451E+05
2.970	20.0	1.13E+06	3.71E+06	9.45	1.752E+02	57.9	1.019E-02	1466.0	7.617E+05
3.164	22.0	1.12E+06	3.68E+06	9.44	1.771E+02	58.6	1.018E-02	1474.5	7.742E+05
3.402	24.0	1.11E+06	3.65E+06	9.44	1.792E+02	59.4	1.016E-02	1484.6	7.892E+05

Figure A - 2. Run 3021 flow conditions.



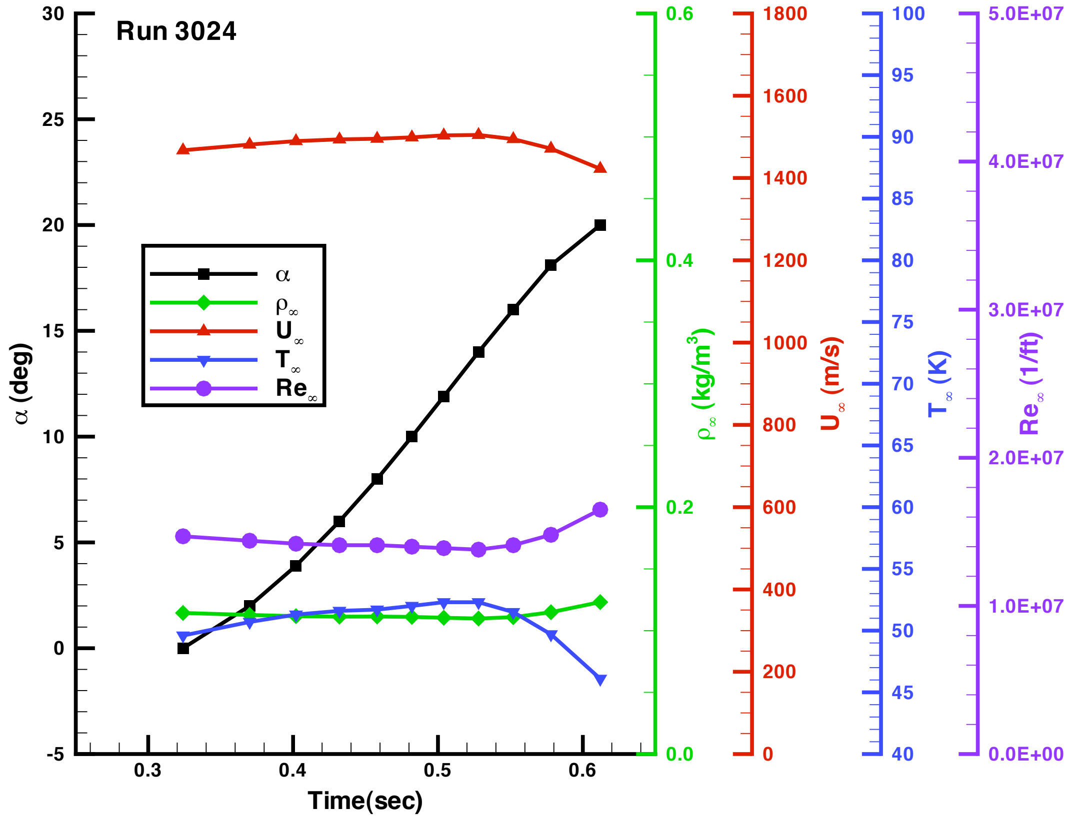
Time (sec)	α (°)	Re$_\infty$ (1/ft)	Re$_\infty$ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.624	0.0	4.77E+06	1.57E+07	9.83	6.216E+02	52.8	3.961E-02	1457.3	7.491E+05
0.690	2.0	4.72E+06	1.55E+07	9.82	6.267E+02	53.4	3.949E-02	1464.0	7.588E+05
0.736	4.1	4.66E+06	1.53E+07	9.82	6.265E+02	53.9	3.914E-02	1470.1	7.678E+05
0.774	6.0	4.65E+06	1.53E+07	9.82	6.264E+02	54.0	3.907E-02	1471.5	7.698E+05
0.808	8.0	4.64E+06	1.52E+07	9.81	6.294E+02	54.2	3.910E-02	1473.5	7.728E+05
0.840	10.0	4.62E+06	1.51E+07	9.80	6.327E+02	54.6	3.904E-02	1477.1	7.780E+05
0.872	12.1	4.60E+06	1.51E+07	9.80	6.345E+02	54.8	3.897E-02	1479.7	7.819E+05
0.902	14.1	4.58E+06	1.50E+07	9.79	6.350E+02	55.0	3.891E-02	1481.0	7.839E+05
0.932	16.1	4.57E+06	1.50E+07	9.79	6.347E+02	55.0	3.883E-02	1482.0	7.853E+05
0.962	18.0	4.56E+06	1.50E+07	9.79	6.356E+02	55.2	3.880E-02	1483.2	7.870E+05
0.996	20.0	4.55E+06	1.49E+07	9.78	6.383E+02	55.4	3.883E-02	1485.0	7.897E+05
1.036	22.0	4.53E+06	1.49E+07	9.78	6.382E+02	55.5	3.871E-02	1486.9	7.926E+05
1.092	24.0	4.50E+06	1.48E+07	9.78	6.381E+02	55.8	3.852E-02	1489.9	7.971E+05

Figure A - 3. Run 3022 flow conditions.



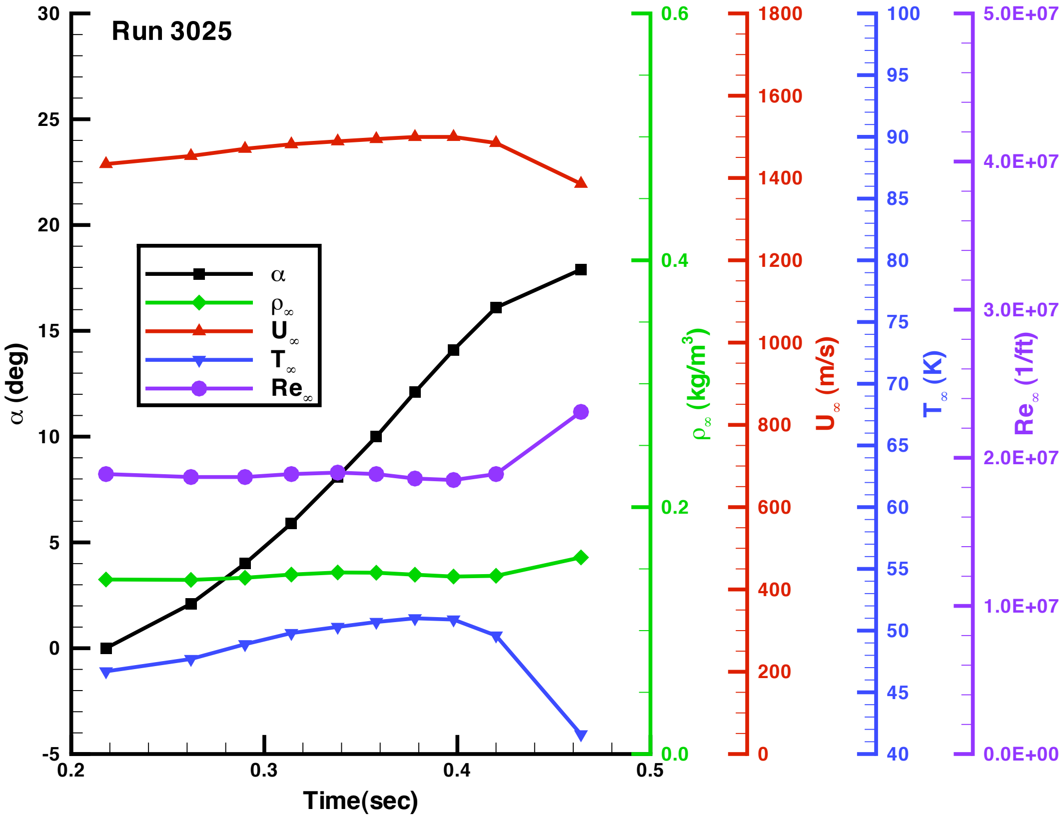
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.332	0.0	8.97E+06	2.94E+07	10.05	1.052E+03	49.9	7.092E-02	1448.9	7.368E+05
0.380	2.0	8.80E+06	2.89E+07	10.04	1.060E+03	50.8	7.025E-02	1459.6	7.524E+05
0.414	4.0	8.72E+06	2.86E+07	10.04	1.061E+03	51.1	6.984E-02	1464.1	7.590E+05
0.444	6.0	8.68E+06	2.85E+07	10.03	1.064E+03	51.4	6.968E-02	1467.1	7.634E+05
0.474	8.1	8.61E+06	2.82E+07	10.03	1.068E+03	51.8	6.944E-02	1472.3	7.710E+05
0.500	10.0	8.54E+06	2.80E+07	10.02	1.072E+03	52.2	6.912E-02	1477.3	7.784E+05
0.528	12.0	8.48E+06	2.78E+07	10.02	1.073E+03	52.5	6.887E-02	1480.6	7.832E+05
0.558	14.1	8.46E+06	2.78E+07	10.02	1.074E+03	52.6	6.878E-02	1481.8	7.851E+05
0.588	16.0	8.44E+06	2.77E+07	10.02	1.075E+03	52.7	6.871E-02	1482.9	7.866E+05
0.618	18.0	8.41E+06	2.76E+07	10.02	1.075E+03	52.8	6.855E-02	1484.6	7.892E+05
0.648	20.0	8.36E+06	2.74E+07	10.01	1.077E+03	53.1	6.835E-02	1487.7	7.937E+05
0.680	22.0	8.31E+06	2.73E+07	10.01	1.080E+03	53.4	6.816E-02	1490.9	7.986E+05
0.718	24.0	8.30E+06	2.72E+07	10.01	1.079E+03	53.4	6.806E-02	1491.6	7.996E+05

Figure A - 4. Run 3023 flow conditions.



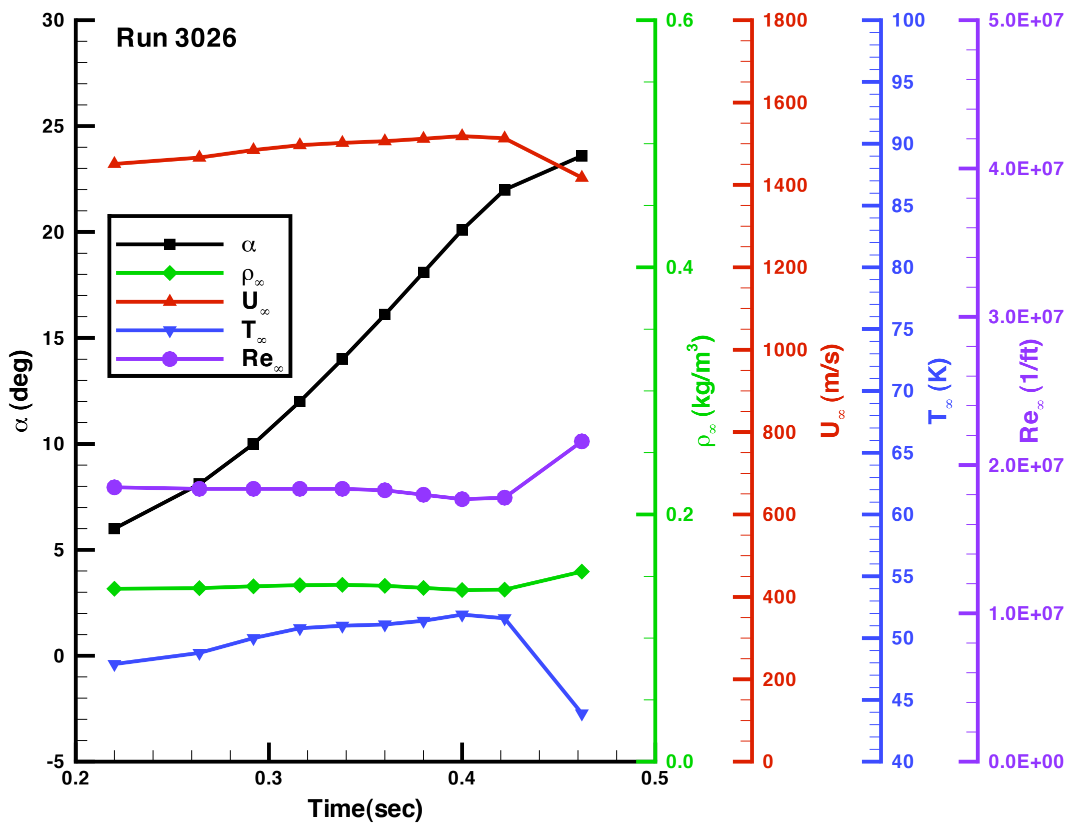
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.324	0.0	1.47E+07	4.83E+07	10.21	1.684E+03	49.6	1.143E-01	1467.4	7.638E+05
0.370	2.0	1.44E+07	4.72E+07	10.21	1.695E+03	50.7	1.127E-01	1481.3	7.843E+05
0.402	3.9	1.42E+07	4.64E+07	10.20	1.701E+03	51.3	1.117E-01	1489.7	7.968E+05
0.432	6.0	1.41E+07	4.61E+07	10.20	1.706E+03	51.6	1.113E-01	1493.9	8.031E+05
0.458	8.0	1.41E+07	4.61E+07	10.20	1.710E+03	51.7	1.114E-01	1495.4	8.053E+05
0.482	10.0	1.40E+07	4.59E+07	10.20	1.714E+03	52.0	1.111E-01	1498.8	8.104E+05
0.504	11.9	1.39E+07	4.54E+07	10.20	1.714E+03	52.3	1.104E-01	1503.6	8.176E+05
0.528	14.0	1.38E+07	4.52E+07	10.20	1.704E+03	52.3	1.098E-01	1504.6	8.191E+05
0.552	16.0	1.41E+07	4.61E+07	10.22	1.694E+03	51.5	1.109E-01	1494.6	8.041E+05
0.578	18.1	1.48E+07	4.86E+07	10.23	1.696E+03	49.7	1.149E-01	1471.4	7.696E+05
0.612	20.0	1.65E+07	5.43E+07	10.27	1.684E+03	46.1	1.231E-01	1422.4	6.989E+05
0.324	0.0	1.47E+07	4.83E+07	10.21	1.684E+03	49.6	1.143E-01	1467.4	7.638E+05

Figure A - 5. Run 3024 flow conditions.



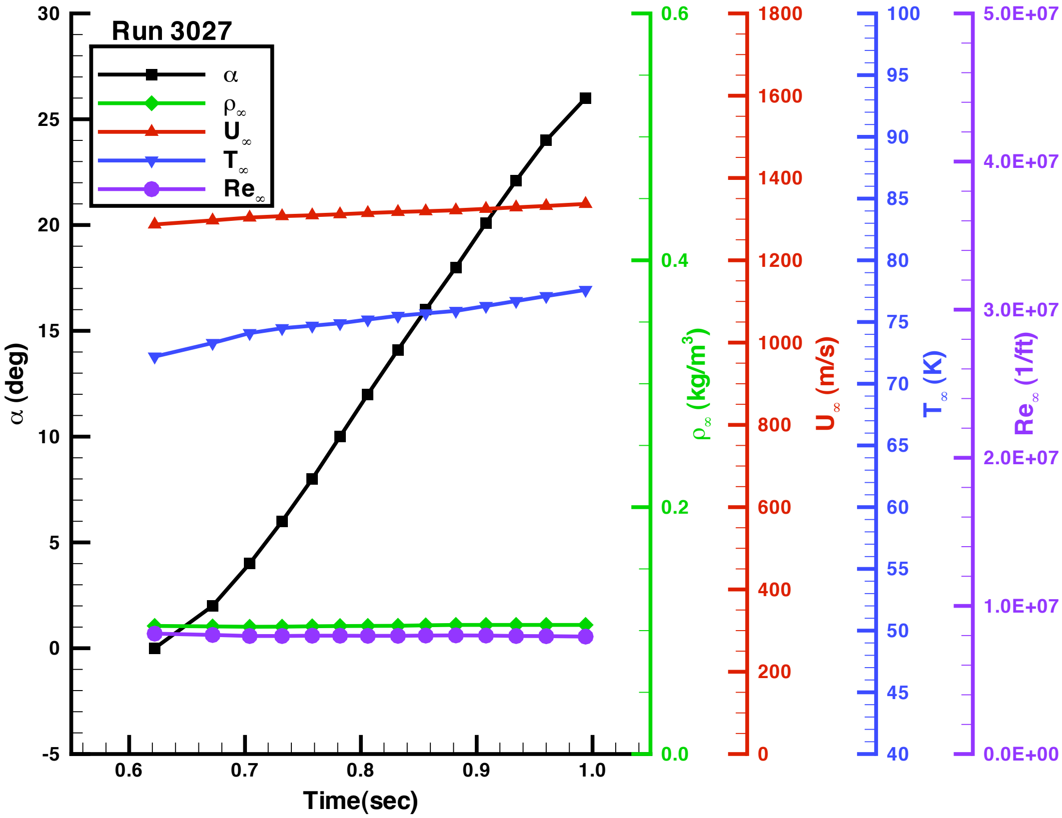
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.218	0.0	1.89E+07	6.21E+07	10.29	1.961E+03	46.7	1.414E-01	1434.0	7.154E+05
0.262	2.1	1.87E+07	6.15E+07	10.32	1.999E+03	47.7	1.411E-01	1453.6	7.437E+05
0.290	4.0	1.87E+07	6.15E+07	10.32	2.073E+03	48.9	1.428E-01	1471.0	7.691E+05
0.314	5.9	1.89E+07	6.19E+07	10.31	2.147E+03	49.8	1.454E-01	1482.0	7.854E+05
0.338	8.1	1.90E+07	6.23E+07	10.30	2.199E+03	50.3	1.471E-01	1489.2	7.961E+05
0.358	10.0	1.89E+07	6.19E+07	10.29	2.212E+03	50.7	1.469E-01	1494.7	8.043E+05
0.378	12.1	1.86E+07	6.11E+07	10.30	2.200E+03	51.0	1.453E-01	1499.7	8.118E+05
0.398	14.1	1.85E+07	6.06E+07	10.31	2.173E+03	50.9	1.438E-01	1499.8	8.119E+05
0.420	16.1	1.89E+07	6.19E+07	10.34	2.127E+03	49.6	1.444E-01	1485.1	7.899E+05
0.464	17.9	2.31E+07	7.56E+07	10.54	1.969E+03	41.6	1.593E-01	1385.9	6.478E+05

Figure A - 6. Run 3025 flow conditions.



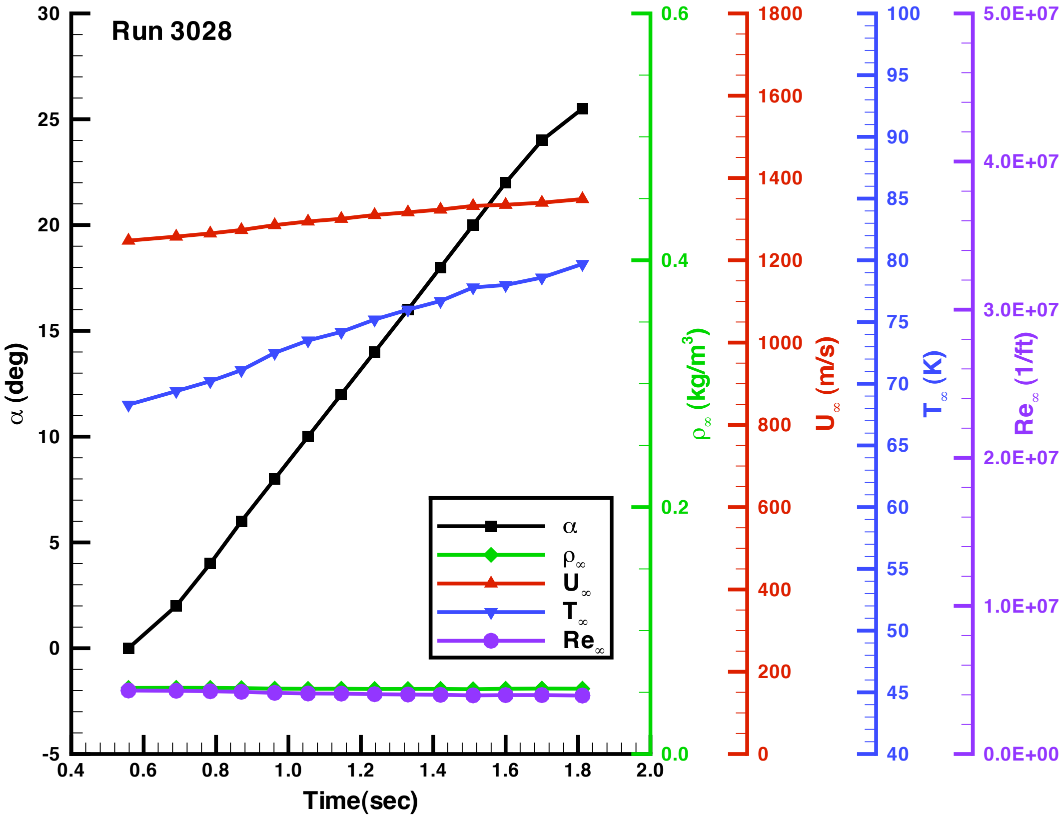
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.220	6.0	1.85E+07	6.05E+07	10.28	1.991E+03	47.9	1.399E-01	1451.0	7.400E+05
0.264	8.1	1.84E+07	6.03E+07	10.30	2.032E+03	48.8	1.404E-01	1466.4	7.624E+05
0.292	10.0	1.84E+07	6.03E+07	10.30	2.106E+03	50.0	1.419E-01	1484.7	7.893E+05
0.316	12.0	1.84E+07	6.03E+07	10.30	2.152E+03	50.8	1.428E-01	1496.5	8.070E+05
0.338	14.0	1.84E+07	6.03E+07	10.32	2.166E+03	51.0	1.431E-01	1502.1	8.153E+05
0.360	16.1	1.83E+07	6.00E+07	10.33	2.159E+03	51.1	1.423E-01	1506.1	8.213E+05
0.380	18.1	1.80E+07	5.92E+07	10.34	2.147E+03	51.4	1.406E-01	1512.0	8.303E+05
0.400	20.1	1.77E+07	5.81E+07	10.34	2.140E+03	51.9	1.389E-01	1518.4	8.398E+05
0.422	22.0	1.78E+07	5.84E+07	10.33	2.131E+03	51.6	1.392E-01	1513.0	8.317E+05
0.462	23.6	2.16E+07	7.08E+07	10.49	2.007E+03	43.9	1.538E-01	1417.5	6.920E+05

Figure A - 7. Run 3026 flow conditions.



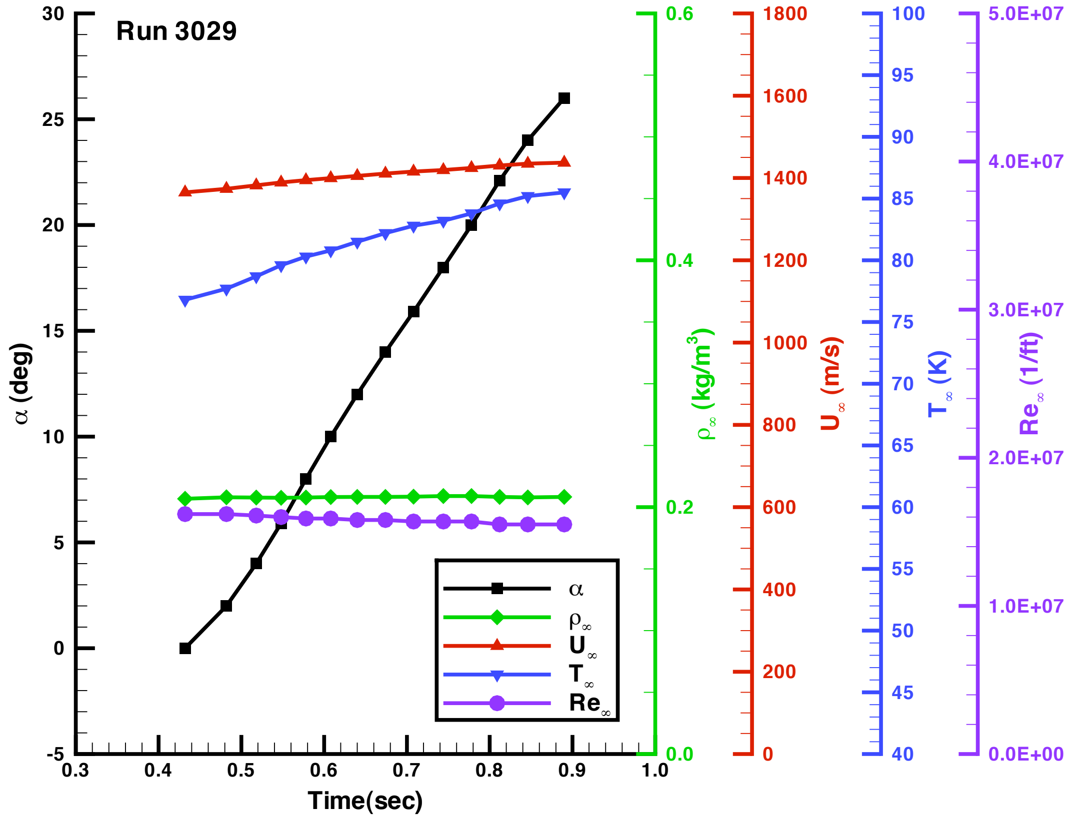
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.622	0.0	8.13E+06	2.67E+07	7.43	2.227E+03	72.2	1.038E-01	1287.1	5.157E+05
0.672	2.0	8.04E+06	2.64E+07	7.43	2.251E+03	73.3	1.034E-01	1297.0	5.284E+05
0.704	4.0	7.97E+06	2.62E+07	7.43	2.267E+03	74.1	1.031E-01	1303.9	5.374E+05
0.732	6.0	7.97E+06	2.61E+07	7.43	2.281E+03	74.5	1.032E-01	1307.3	5.419E+05
0.758	8.0	7.99E+06	2.62E+07	7.43	2.295E+03	74.7	1.035E-01	1309.4	5.446E+05
0.782	10.0	7.99E+06	2.62E+07	7.43	2.307E+03	74.9	1.037E-01	1311.9	5.479E+05
0.806	12.0	7.98E+06	2.62E+07	7.43	2.318E+03	75.2	1.038E-01	1314.9	5.518E+05
0.832	14.1	7.98E+06	2.62E+07	7.44	2.329E+03	75.5	1.039E-01	1317.5	5.553E+05
0.856	16.0	8.00E+06	2.62E+07	7.44	2.342E+03	75.7	1.043E-01	1319.3	5.575E+05
0.882	18.0	8.01E+06	2.63E+07	7.44	2.356E+03	75.9	1.046E-01	1321.6	5.607E+05
0.908	20.1	8.00E+06	2.62E+07	7.44	2.369E+03	76.3	1.046E-01	1325.1	5.652E+05
0.934	22.1	7.97E+06	2.62E+07	7.44	2.381E+03	76.7	1.046E-01	1328.7	5.701E+05
0.960	24.0	7.96E+06	2.61E+07	7.44	2.393E+03	77.1	1.046E-01	1332.1	5.745E+05
0.994	26.0	7.93E+06	2.60E+07	7.44	2.410E+03	77.6	1.046E-01	1337.0	5.811E+05

Figure A - 8. Run 3027 flow conditions.



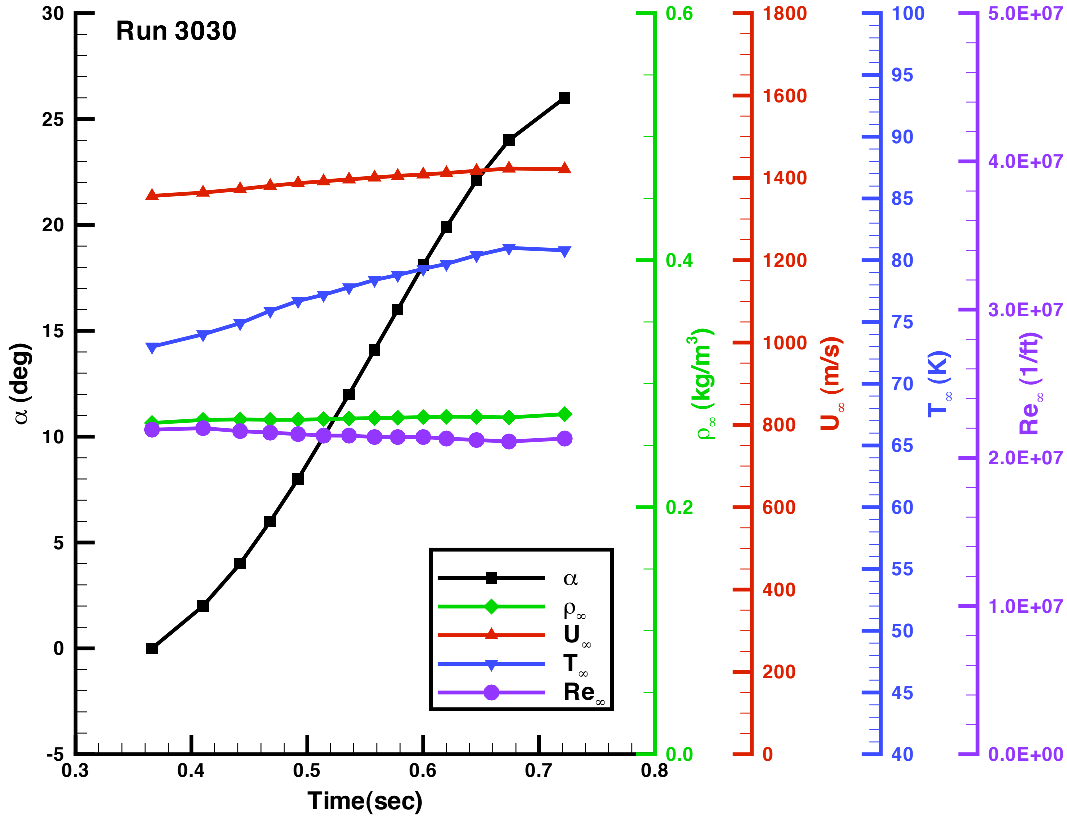
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.558	0.0	4.29E+06	1.41E+07	7.40	1.087E+03	68.3	5.356E-02	1247.8	4.659E+05
0.690	2.0	4.27E+06	1.40E+07	7.40	1.106E+03	69.4	5.367E-02	1257.6	4.782E+05
0.784	4.0	4.24E+06	1.39E+07	7.40	1.118E+03	70.2	5.361E-02	1265.3	4.879E+05
0.870	6.0	4.20E+06	1.38E+07	7.40	1.129E+03	71.1	5.344E-02	1273.7	4.986E+05
0.962	8.0	4.13E+06	1.36E+07	7.40	1.141E+03	72.5	5.301E-02	1285.5	5.136E+05
1.054	10.0	4.09E+06	1.34E+07	7.40	1.152E+03	73.5	5.283E-02	1294.4	5.250E+05
1.146	12.0	4.08E+06	1.34E+07	7.40	1.165E+03	74.2	5.291E-02	1300.8	5.334E+05
1.238	14.0	4.04E+06	1.32E+07	7.40	1.177E+03	75.2	5.270E-02	1310.1	5.455E+05
1.330	16.0	4.02E+06	1.32E+07	7.41	1.189E+03	76.0	5.274E-02	1316.6	5.541E+05
1.420	18.0	4.00E+06	1.31E+07	7.41	1.202E+03	76.7	5.276E-02	1323.3	5.629E+05
1.510	20.0	3.96E+06	1.30E+07	7.41	1.213E+03	77.8	5.254E-02	1332.2	5.747E+05
1.600	22.0	3.98E+06	1.31E+07	7.41	1.225E+03	78.0	5.288E-02	1334.9	5.783E+05
1.700	24.0	3.98E+06	1.31E+07	7.41	1.239E+03	78.6	5.307E-02	1340.0	5.851E+05
1.812	25.5	3.95E+06	1.30E+07	7.41	1.253E+03	79.7	5.296E-02	1348.8	5.969E+05

Figure A - 9. Run 3028 flow conditions.



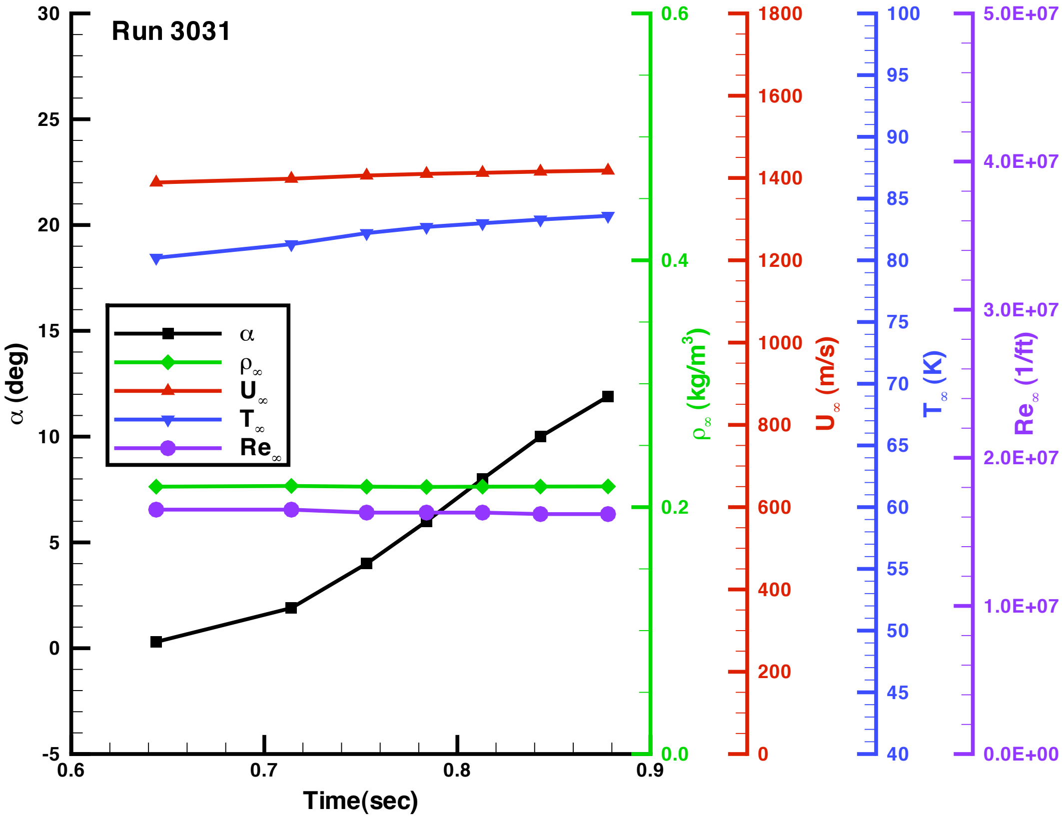
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.432	0.0	1.62E+07	5.31E+07	7.65	4.707E+03	76.8	2.068E-01	1365.1	6.190E+05
0.482	2.0	1.62E+07	5.31E+07	7.64	4.795E+03	77.7	2.080E-01	1373.7	6.308E+05
0.518	4.0	1.61E+07	5.27E+07	7.64	4.854E+03	78.7	2.078E-01	1382.2	6.425E+05
0.548	5.9	1.60E+07	5.24E+07	7.64	4.900E+03	79.6	2.076E-01	1389.2	6.522E+05
0.578	8.0	1.59E+07	5.22E+07	7.64	4.947E+03	80.3	2.078E-01	1394.8	6.599E+05
0.608	10.0	1.59E+07	5.21E+07	7.64	4.992E+03	80.8	2.082E-01	1399.7	6.668E+05
0.640	12.0	1.58E+07	5.19E+07	7.64	5.035E+03	81.5	2.083E-01	1405.1	6.743E+05
0.674	14.0	1.58E+07	5.17E+07	7.63	5.078E+03	82.2	2.083E-01	1410.8	6.824E+05
0.708	15.9	1.57E+07	5.16E+07	7.63	5.119E+03	82.8	2.085E-01	1415.7	6.892E+05
0.744	18.0	1.57E+07	5.16E+07	7.63	5.160E+03	83.2	2.090E-01	1419.4	6.945E+05
0.778	20.0	1.57E+07	5.14E+07	7.63	5.197E+03	83.8	2.090E-01	1424.4	7.015E+05
0.812	22.1	1.55E+07	5.10E+07	7.63	5.228E+03	84.6	2.083E-01	1430.4	7.101E+05
0.846	24.0	1.55E+07	5.07E+07	7.63	5.253E+03	85.2	2.079E-01	1434.9	7.165E+05
0.890	26.0	1.55E+07	5.07E+07	7.63	5.282E+03	85.5	2.083E-01	1437.3	7.201E+05

Figure A - 10. Run 3029 flow conditions.



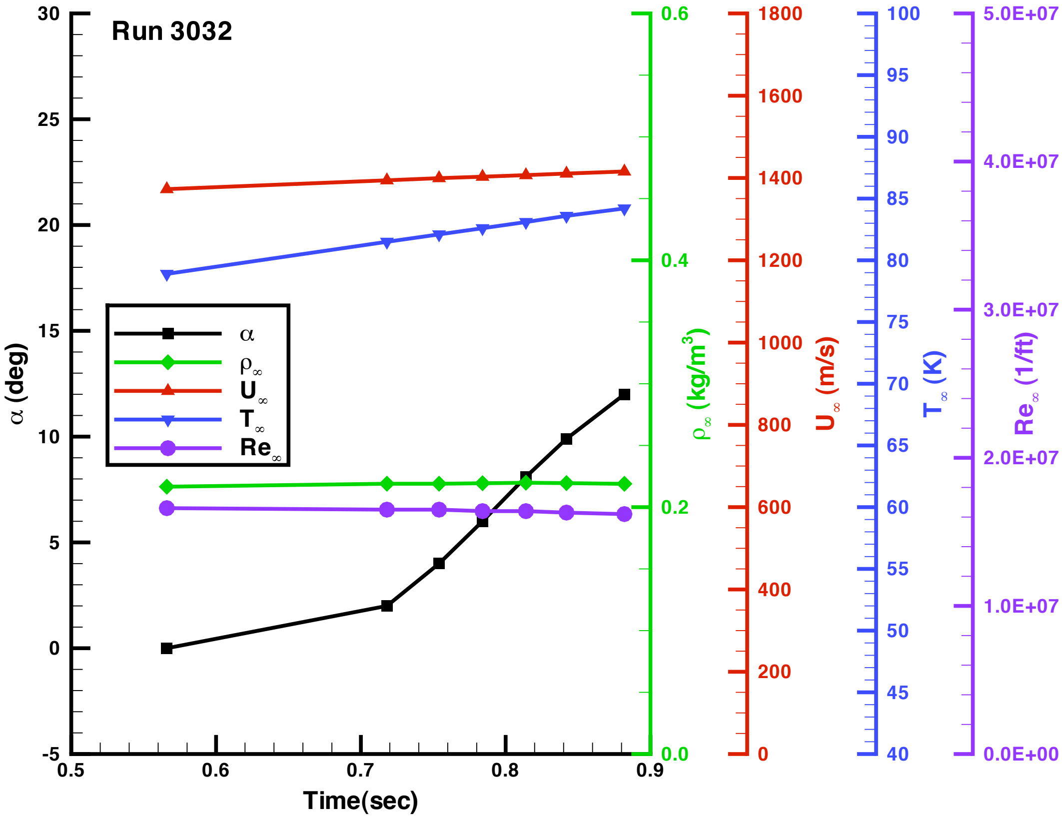
Time (sec)	α (°)	Re$_\infty$ (1/ft)	Re$_\infty$ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.366	0.0	2.19E+07	7.18E+07	7.79	5.804E+03	73.0	2.682E-01	1356.1	6.067E+05
0.410	2.0	2.20E+07	7.20E+07	7.78	5.935E+03	74.0	2.707E-01	1364.2	6.178E+05
0.442	4.0	2.18E+07	7.16E+07	7.78	6.022E+03	74.9	2.711E-01	1372.5	6.290E+05
0.468	6.0	2.17E+07	7.11E+07	7.78	6.093E+03	75.9	2.708E-01	1380.6	6.402E+05
0.492	8.0	2.16E+07	7.07E+07	7.77	6.156E+03	76.7	2.708E-01	1387.0	6.491E+05
0.514	10.0	2.15E+07	7.06E+07	7.77	6.212E+03	77.2	2.713E-01	1391.7	6.555E+05
0.536	12.0	2.15E+07	7.05E+07	7.77	6.269E+03	77.8	2.718E-01	1396.2	6.619E+05
0.558	14.1	2.14E+07	7.03E+07	7.77	6.323E+03	78.4	2.722E-01	1400.9	6.684E+05
0.578	16.0	2.14E+07	7.01E+07	7.76	6.367E+03	78.8	2.725E-01	1404.8	6.739E+05
0.600	18.1	2.14E+07	7.01E+07	7.76	6.416E+03	79.3	2.730E-01	1408.3	6.789E+05
0.620	19.9	2.13E+07	7.00E+07	7.76	6.456E+03	79.7	2.733E-01	1411.7	6.836E+05
0.646	22.1	2.12E+07	6.96E+07	7.76	6.508E+03	80.4	2.732E-01	1417.2	6.913E+05
0.674	24.0	2.11E+07	6.92E+07	7.75	6.554E+03	81.0	2.727E-01	1422.7	6.992E+05
0.722	26.0	2.13E+07	7.00E+07	7.75	6.596E+03	80.8	2.753E-01	1420.9	6.966E+05

Figure A - 11. Run 3030 flow conditions.



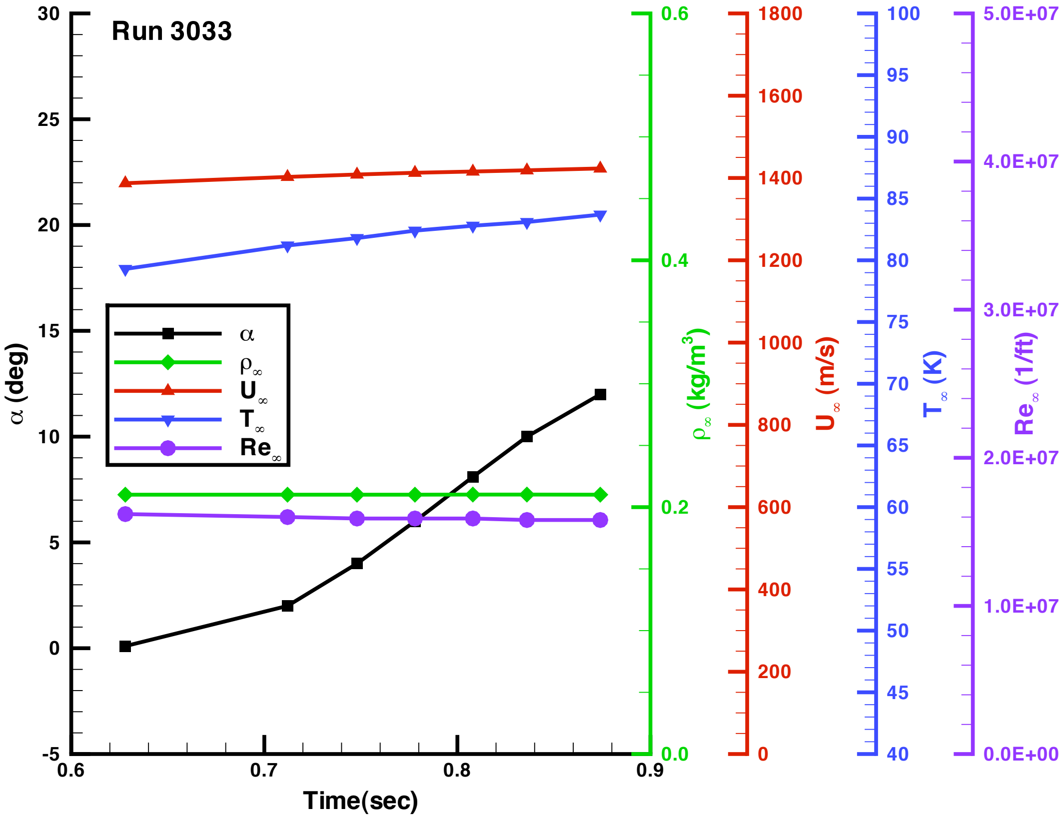
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.644	0.3	1.65E+07	5.42E+07	7.61	5.154E+03	80.2	2.166E-01	1389.0	6.519E+05
0.714	1.9	1.65E+07	5.40E+07	7.61	5.235E+03	81.3	2.172E-01	1398.2	6.646E+05
0.753	4.0	1.63E+07	5.35E+07	7.61	5.281E+03	82.2	2.166E-01	1406.1	6.757E+05
0.784	6.0	1.63E+07	5.34E+07	7.61	5.308E+03	82.7	2.164E-01	1410.1	6.814E+05
0.813	8.0	1.63E+07	5.33E+07	7.61	5.329E+03	83.0	2.166E-01	1412.6	6.848E+05
0.843	10.0	1.62E+07	5.32E+07	7.61	5.355E+03	83.3	2.167E-01	1415.6	6.891E+05
0.878	11.9	1.62E+07	5.32E+07	7.61	5.378E+03	83.6	2.168E-01	1418.1	6.926E+05

Figure A - 12. Run 3031 flow conditions.



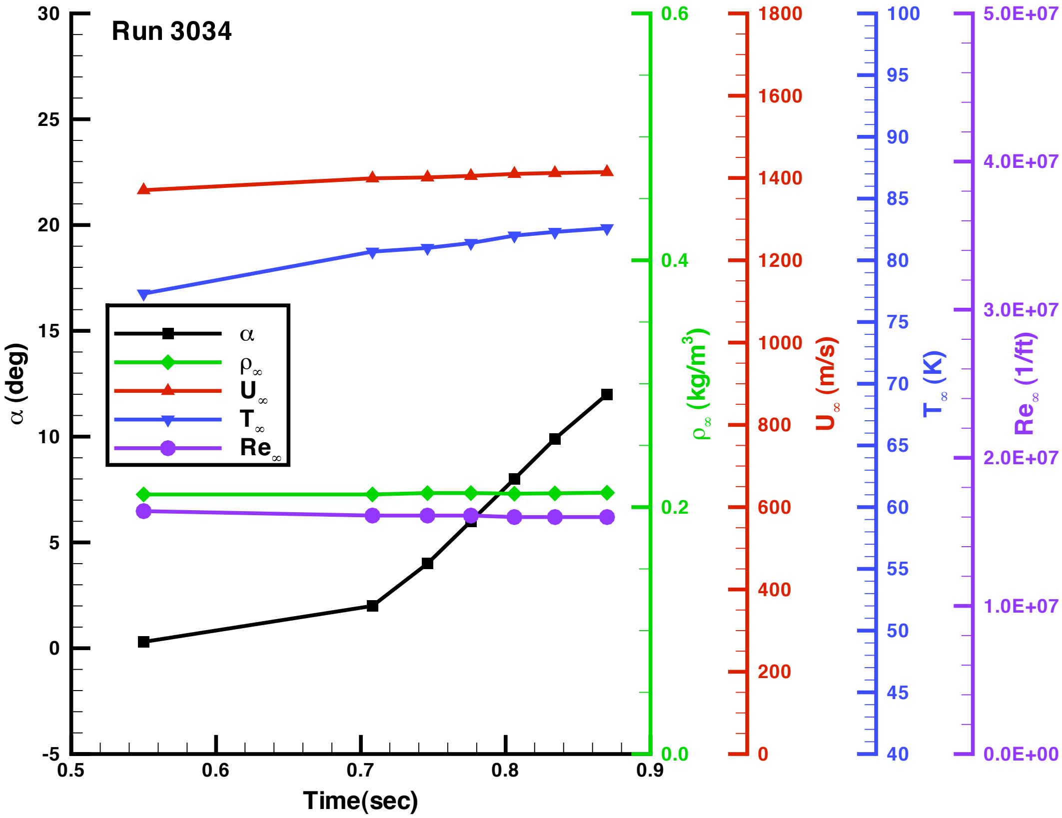
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.566	0.0	1.66E+07	5.44E+07	7.58	5.068E+03	78.9	2.166E-01	1372.9	6.297E+05
0.718	2.0	1.65E+07	5.42E+07	7.58	5.292E+03	81.5	2.190E-01	1394.4	6.593E+05
0.754	4.0	1.65E+07	5.40E+07	7.58	5.335E+03	82.1	2.190E-01	1399.6	6.666E+05
0.784	6.0	1.64E+07	5.39E+07	7.58	5.374E+03	82.6	2.194E-01	1403.1	6.715E+05
0.814	8.1	1.64E+07	5.38E+07	7.57	5.418E+03	83.1	2.198E-01	1406.9	6.768E+05
0.842	9.9	1.63E+07	5.36E+07	7.57	5.442E+03	83.6	2.195E-01	1410.7	6.822E+05
0.882	12.0	1.62E+07	5.33E+07	7.57	5.465E+03	84.2	2.189E-01	1415.7	6.892E+05

Figure A - 13. Run 3032 flow conditions.



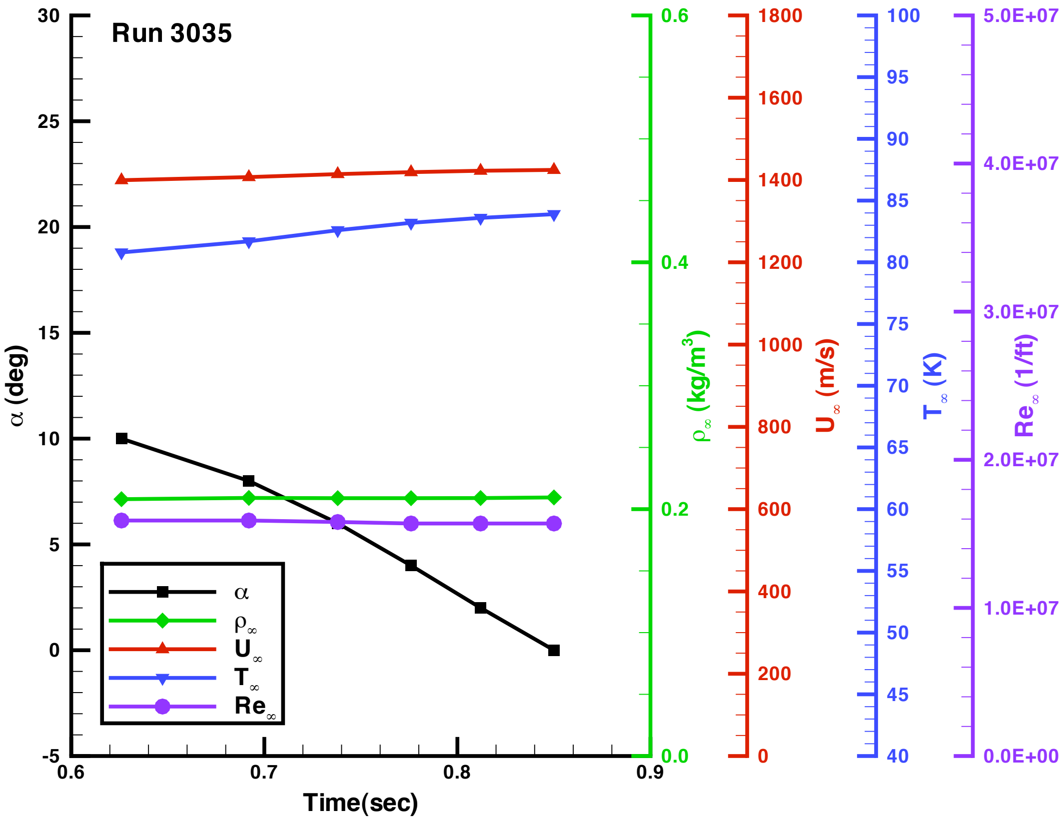
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.628	0.1	1.62E+07	5.31E+07	7.64	4.942E+03	79.3	2.101E-01	1387.3	6.495E+05
0.712	2.0	1.60E+07	5.25E+07	7.64	5.057E+03	81.2	2.101E-01	1402.6	6.708E+05
0.748	4.0	1.59E+07	5.23E+07	7.64	5.099E+03	81.8	2.101E-01	1408.4	6.789E+05
0.778	6.0	1.59E+07	5.21E+07	7.64	5.133E+03	82.4	2.101E-01	1412.6	6.849E+05
0.808	8.1	1.59E+07	5.20E+07	7.63	5.160E+03	82.8	2.102E-01	1415.6	6.892E+05
0.836	10.0	1.58E+07	5.19E+07	7.63	5.181E+03	83.1	2.102E-01	1418.6	6.933E+05
0.874	12.0	1.58E+07	5.17E+07	7.63	5.212E+03	83.7	2.101E-01	1423.0	6.996E+05

Figure A - 14. Run 3033 flow conditions.



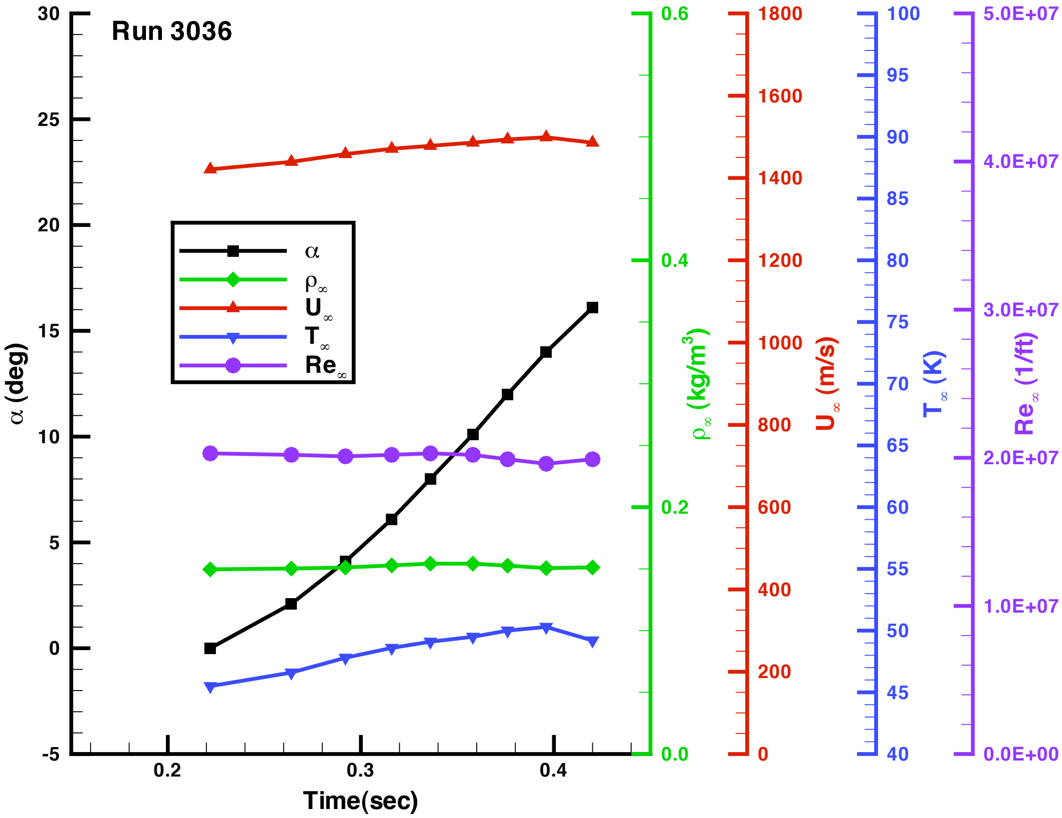
Time (sec)	α (°)	Re$_\infty$ (1/ft)	Re$_\infty$ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.550	0.3	1.64E+07	5.38E+07	7.65	4.823E+03	77.3	2.103E-01	1370.4	6.262E+05
0.708	2.0	1.61E+07	5.27E+07	7.64	5.036E+03	80.7	2.103E-01	1399.2	6.660E+05
0.746	4.0	1.61E+07	5.29E+07	7.64	5.077E+03	81.0	2.114E-01	1401.4	6.691E+05
0.776	6.0	1.61E+07	5.27E+07	7.64	5.105E+03	81.4	2.114E-01	1405.1	6.743E+05
0.806	8.0	1.60E+07	5.24E+07	7.64	5.131E+03	82.0	2.109E-01	1409.9	6.811E+05
0.834	9.9	1.60E+07	5.24E+07	7.64	5.155E+03	82.3	2.112E-01	1412.0	6.841E+05
0.550	0.3	1.64E+07	5.38E+07	7.65	4.823E+03	77.3	2.103E-01	1370.4	6.262E+05

Figure A - 15. Run 3034 flow conditions.



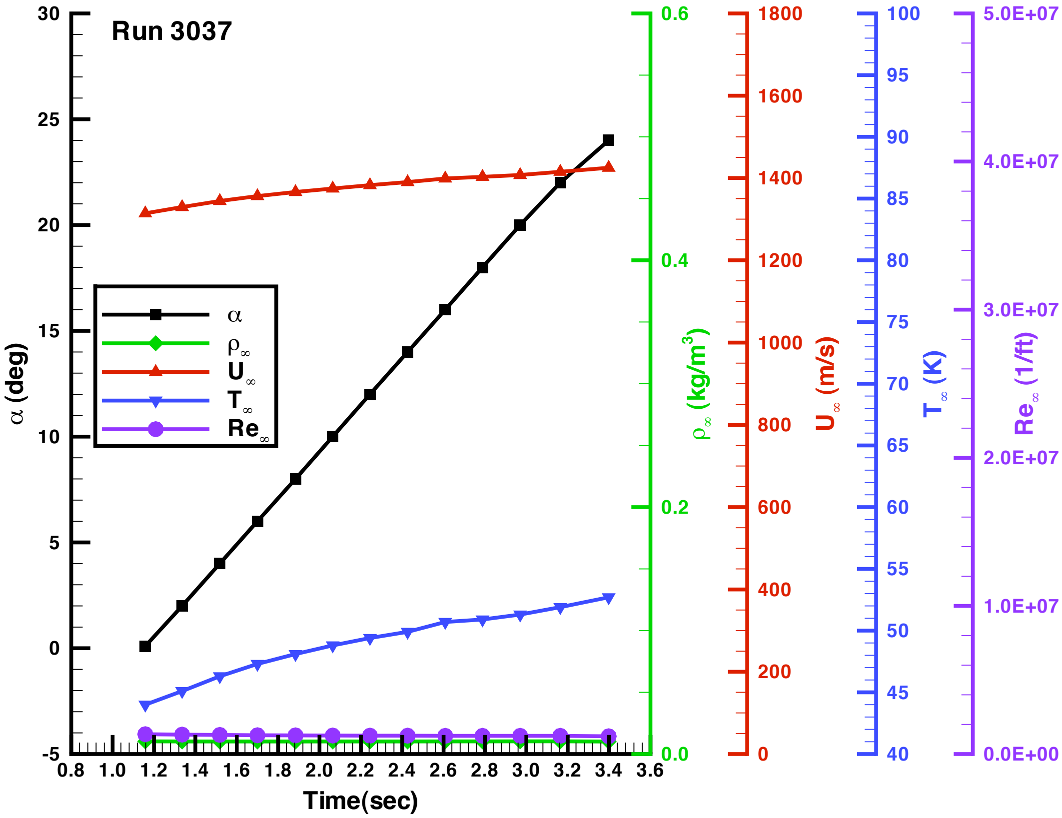
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.626	10.0	1.59E+07	5.21E+07	7.64	4.987E+03	80.8	2.081E-01	1399.5	6.665E+05
0.692	8.0	1.59E+07	5.21E+07	7.64	5.069E+03	81.7	2.091E-01	1407.1	6.771E+05
0.738	6.0	1.58E+07	5.17E+07	7.63	5.119E+03	82.6	2.089E-01	1414.4	6.874E+05
0.776	4.0	1.57E+07	5.15E+07	7.63	5.155E+03	83.2	2.089E-01	1419.1	6.941E+05
0.812	2.0	1.57E+07	5.14E+07	7.63	5.183E+03	83.6	2.090E-01	1422.5	6.988E+05
0.850	0.0	1.57E+07	5.15E+07	7.63	5.211E+03	83.9	2.095E-01	1424.5	7.018E+05

Figure A - 16. Run 3035 flow conditions.



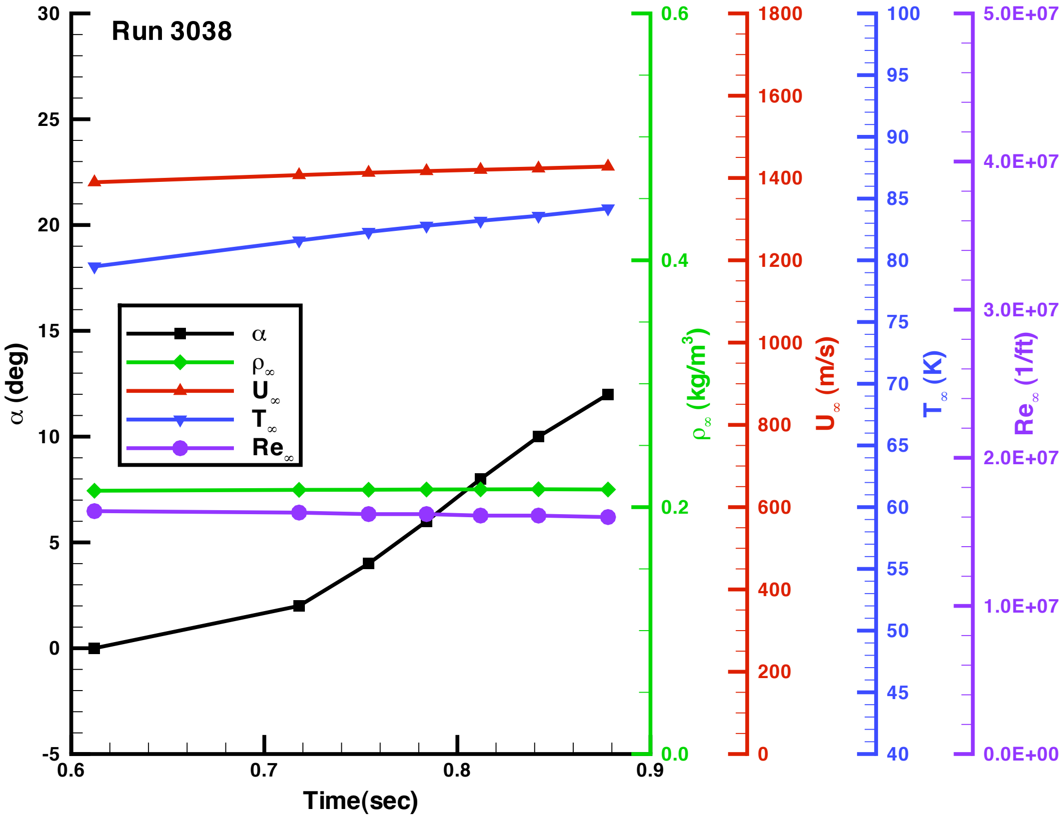
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.222	0.0	2.03E+07	6.67E+07	10.33	2.023E+03	45.5	1.496E-01	1421.0	6.970E+05
0.264	2.1	2.02E+07	6.64E+07	10.34	2.079E+03	46.6	1.503E-01	1439.3	7.230E+05
0.292	4.1	2.01E+07	6.60E+07	10.35	2.142E+03	47.8	1.511E-01	1458.1	7.503E+05
0.316	6.1	2.02E+07	6.61E+07	10.35	2.204E+03	48.6	1.528E-01	1471.0	7.692E+05
0.336	8.0	2.03E+07	6.64E+07	10.35	2.245E+03	49.1	1.542E-01	1478.2	7.797E+05
0.358	10.1	2.02E+07	6.62E+07	10.36	2.267E+03	49.5	1.542E-01	1486.0	7.913E+05
0.376	12.0	1.99E+07	6.52E+07	10.36	2.266E+03	50.0	1.526E-01	1493.8	8.029E+05
0.396	14.0	1.96E+07	6.42E+07	10.36	2.250E+03	50.3	1.506E-01	1499.0	8.107E+05
0.420	16.1	1.99E+07	6.53E+07	10.39	2.210E+03	49.2	1.512E-01	1485.9	7.911E+05

Figure A - 17. Run 3036 flow conditions.



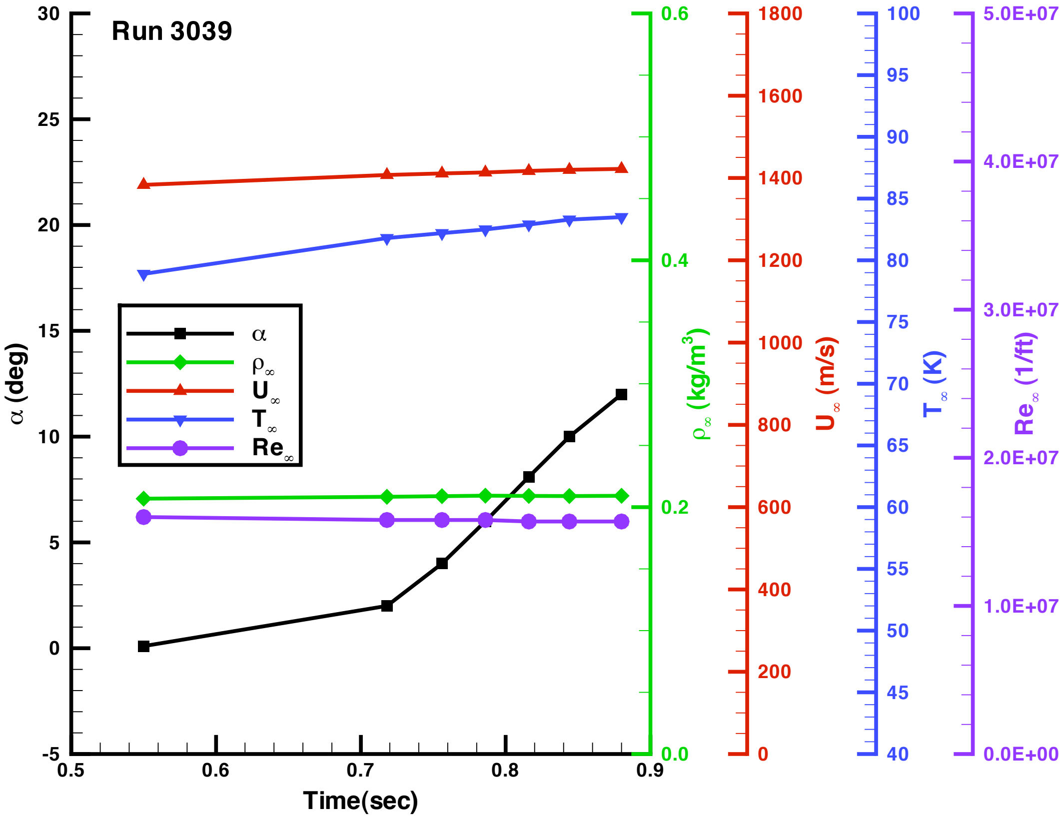
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
1.158	0.1	1.34E+06	4.38E+06	9.71	1.346E+02	44.0	1.029E-02	1314.1	5.509E+05
1.336	2.0	1.31E+06	4.29E+06	9.70	1.367E+02	45.1	1.020E-02	1329.4	5.711E+05
1.518	4.0	1.29E+06	4.22E+06	9.68	1.400E+02	46.3	1.018E-02	1344.1	5.906E+05
1.700	6.0	1.27E+06	4.17E+06	9.66	1.432E+02	47.3	1.019E-02	1356.0	6.067E+05
1.884	8.0	1.26E+06	4.13E+06	9.66	1.451E+02	48.1	1.016E-02	1366.0	6.202E+05
2.064	10.0	1.25E+06	4.11E+06	9.64	1.480E+02	48.8	1.021E-02	1374.4	6.318E+05
2.244	12.0	1.24E+06	4.08E+06	9.65	1.492E+02	49.4	1.018E-02	1382.6	6.431E+05
2.426	14.0	1.24E+06	4.06E+06	9.64	1.512E+02	49.9	1.020E-02	1390.1	6.534E+05
2.608	16.0	1.23E+06	4.05E+06	9.63	1.543E+02	50.7	1.025E-02	1398.8	6.656E+05
2.788	18.0	1.23E+06	4.05E+06	9.64	1.553E+02	50.9	1.026E-02	1402.8	6.712E+05
2.970	20.0	1.23E+06	4.05E+06	9.64	1.568E+02	51.3	1.030E-02	1407.3	6.775E+05
3.164	22.0	1.23E+06	4.03E+06	9.63	1.590E+02	51.9	1.032E-02	1415.1	6.885E+05
3.398	24.0	1.20E+06	3.92E+06	9.63	1.583E+02	52.7	1.012E-02	1424.9	7.023E+05

Figure A - 18. Run 3037 flow conditions.



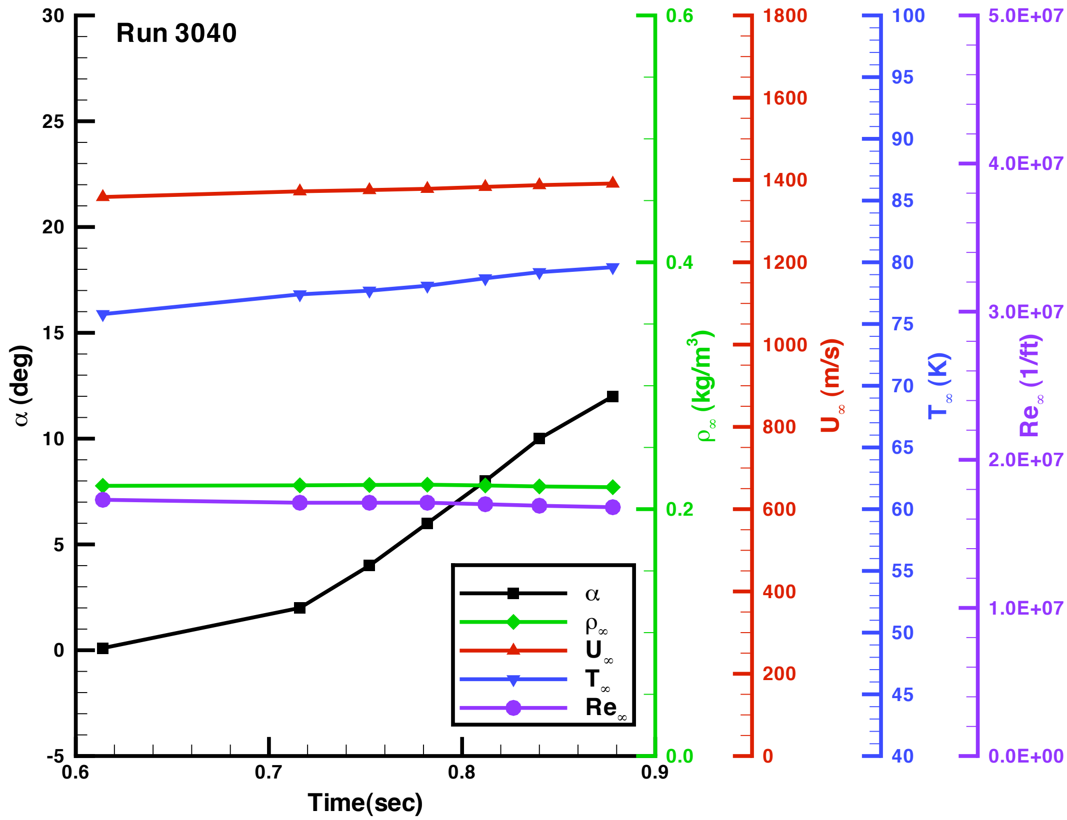
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.612	0.0	1.64E+07	5.39E+07	7.64	5.033E+03	79.5	2.133E-01	1389.7	6.528E+05
0.718	2.0	1.63E+07	5.33E+07	7.64	5.180E+03	81.6	2.140E-01	1407.1	6.772E+05
0.754	4.0	1.62E+07	5.31E+07	7.64	5.227E+03	82.3	2.141E-01	1412.8	6.851E+05
0.784	6.0	1.62E+07	5.30E+07	7.64	5.261E+03	82.8	2.143E-01	1416.8	6.908E+05
0.812	8.0	1.61E+07	5.29E+07	7.64	5.290E+03	83.2	2.144E-01	1420.0	6.953E+05
0.842	10.0	1.61E+07	5.28E+07	7.64	5.317E+03	83.6	2.145E-01	1423.3	7.000E+05
0.878	12.0	1.60E+07	5.26E+07	7.64	5.349E+03	84.2	2.143E-01	1427.8	7.065E+05

Figure A - 19. Run 3038 flow conditions.



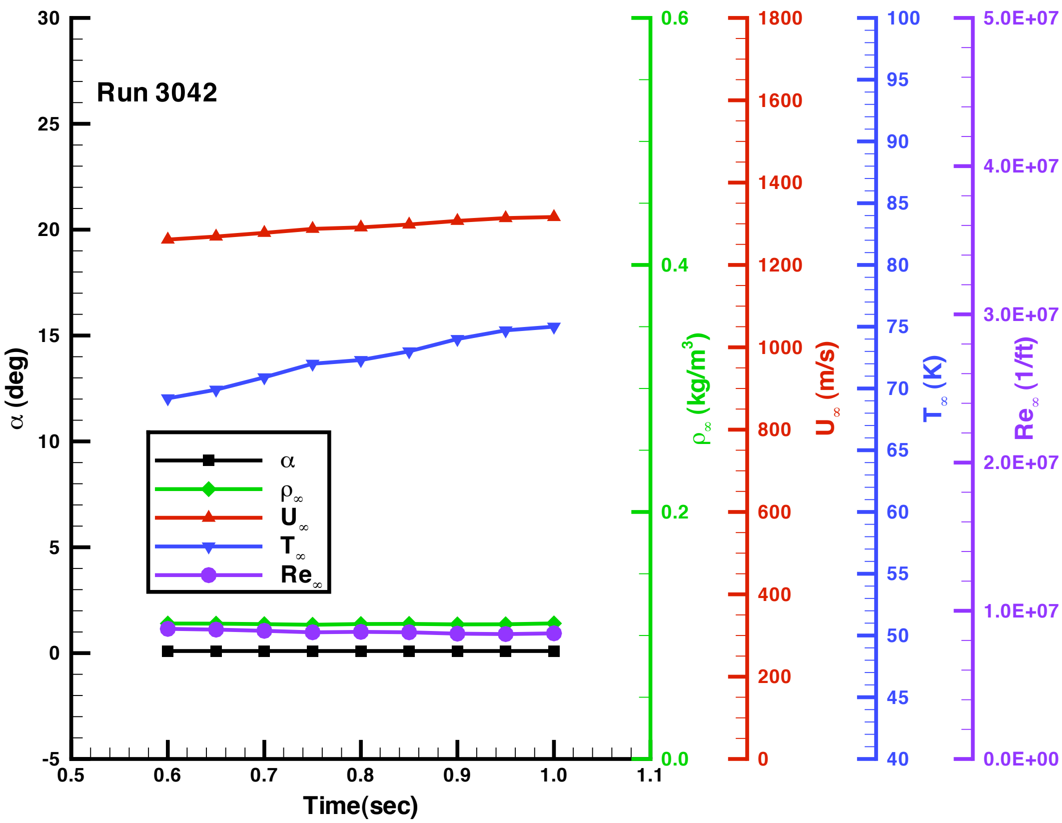
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.550	0.1	1.60E+07	5.24E+07	7.64	4.841E+03	78.9	2.069E-01	1383.3	6.439E+05
0.718	2.0	1.58E+07	5.19E+07	7.64	5.054E+03	81.8	2.084E-01	1407.4	6.775E+05
0.756	4.0	1.58E+07	5.18E+07	7.63	5.094E+03	82.2	2.089E-01	1411.1	6.828E+05
0.786	6.0	1.58E+07	5.18E+07	7.63	5.121E+03	82.5	2.093E-01	1413.5	6.861E+05
0.816	8.1	1.57E+07	5.17E+07	7.63	5.144E+03	82.9	2.091E-01	1417.2	6.913E+05
0.844	10.0	1.57E+07	5.15E+07	7.63	5.164E+03	83.3	2.090E-01	1419.9	6.953E+05
0.880	12.0	1.57E+07	5.15E+07	7.63	5.184E+03	83.5	2.092E-01	1422.0	6.982E+05

Figure A - 20. Run 3039 flow conditions.



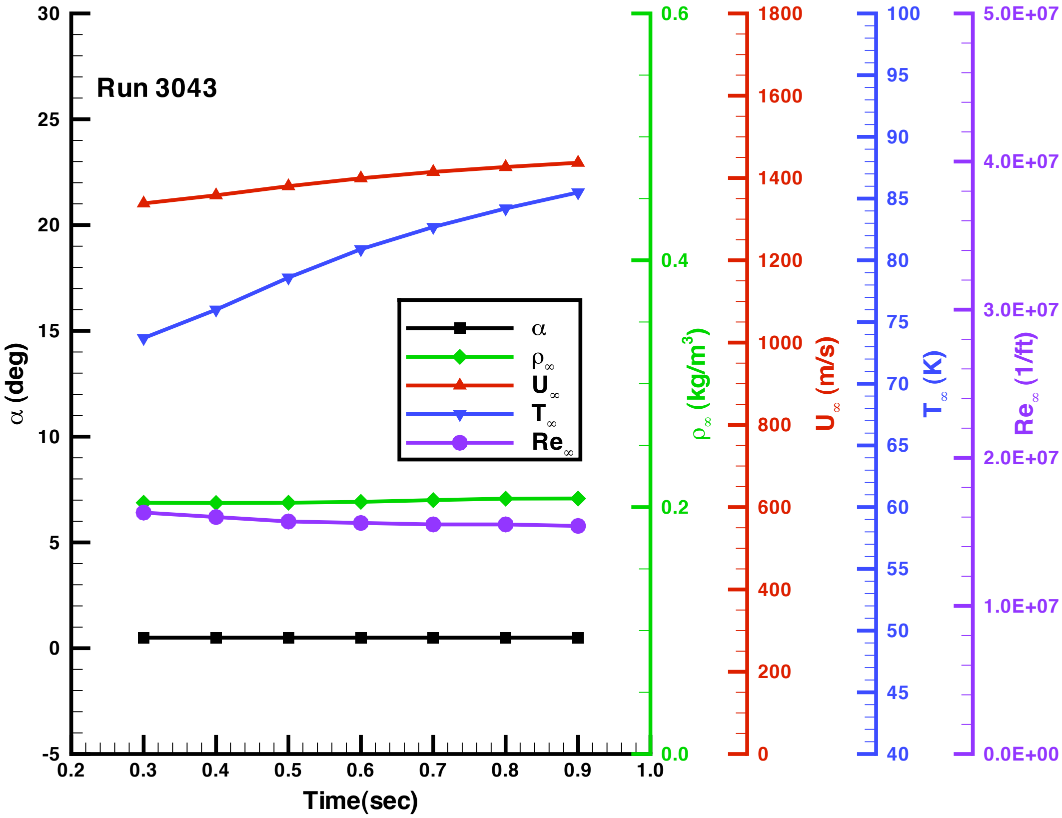
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.614	0.1	1.73E+07	5.67E+07	7.66	4.920E+03	75.8	2.189E-01	1358.6	6.102E+05
0.716	2.0	1.71E+07	5.62E+07	7.65	5.032E+03	77.4	2.193E-01	1372.4	6.289E+05
0.752	4.0	1.71E+07	5.61E+07	7.65	5.063E+03	77.7	2.196E-01	1375.5	6.332E+05
0.782	6.0	1.71E+07	5.60E+07	7.65	5.090E+03	78.1	2.198E-01	1378.5	6.374E+05
0.812	8.0	1.70E+07	5.57E+07	7.65	5.114E+03	78.7	2.192E-01	1383.2	6.438E+05
0.840	10.0	1.69E+07	5.53E+07	7.65	5.130E+03	79.2	2.184E-01	1387.4	6.496E+05
0.878	12.0	1.68E+07	5.50E+07	7.65	5.144E+03	79.6	2.178E-01	1391.3	6.551E+05

Figure A - 21. Run 3040 flow conditions.



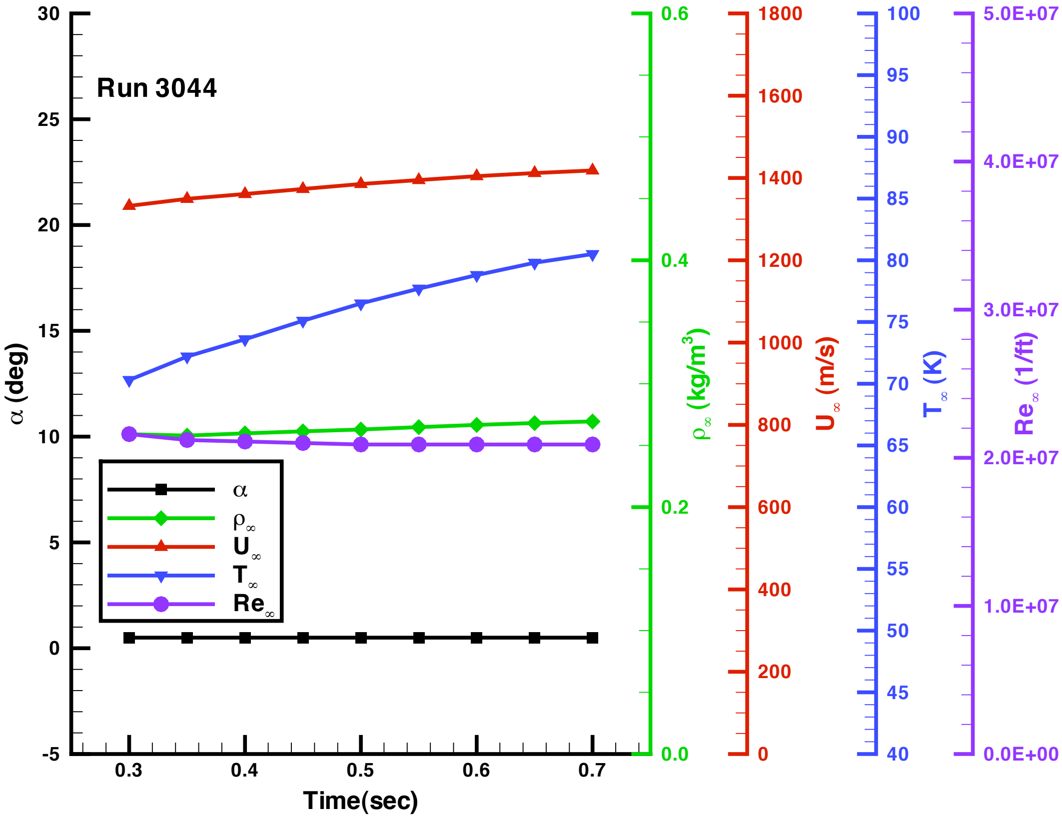
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.600	0.1	8.78E+06	2.88E+07	7.44	2.251E+03	69.2	1.097E-01	1261.6	5.562E+05
0.650	0.1	8.73E+06	2.86E+07	7.44	2.274E+03	69.9	1.096E-01	1269.0	5.664E+05
0.700	0.1	8.65E+06	2.84E+07	7.44	2.298E+03	70.9	1.092E-01	1278.0	5.788E+05
0.750	0.1	8.55E+06	2.80E+07	7.44	2.321E+03	72.0	1.087E-01	1287.7	5.924E+05
0.800	0.1	8.58E+06	2.81E+07	7.45	2.345E+03	72.3	1.093E-01	1291.3	5.974E+05
0.850	0.1	8.55E+06	2.80E+07	7.45	2.370E+03	73.0	1.094E-01	1298.2	6.070E+05
0.900	0.1	8.46E+06	2.78E+07	7.45	2.394E+03	74.0	1.090E-01	1307.1	6.197E+05
0.950	0.1	8.43E+06	2.77E+07	7.45	2.419E+03	74.7	1.091E-01	1313.8	6.292E+05
1.000	0.1	8.48E+06	2.78E+07	7.46	2.442E+03	75.0	1.098E-01	1316.4	6.328E+05

Figure A - 22. Run 3042 flow conditions.



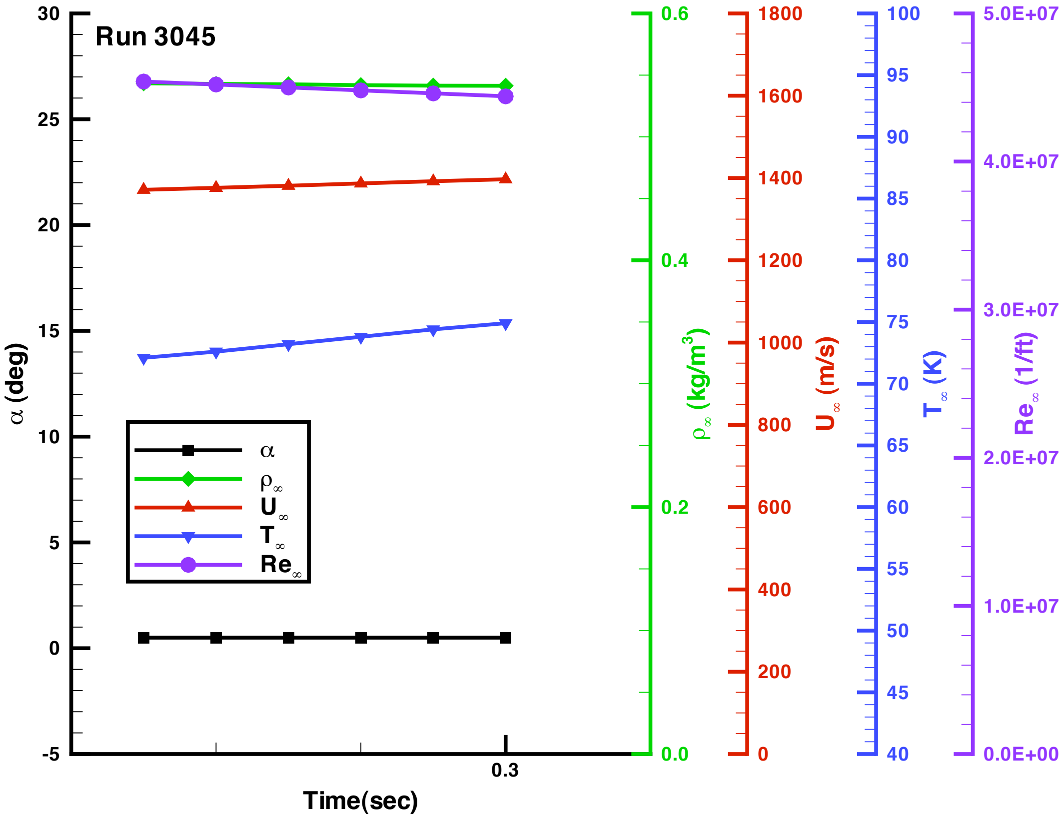
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.300	0.5	1.63E+07	5.33E+07	7.65	4.450E+03	73.7	2.036E-01	1338.3	6.607E+05
0.400	0.5	1.60E+07	5.25E+07	7.64	4.582E+03	76.0	2.034E-01	1357.9	6.894E+05
0.500	0.5	1.57E+07	5.17E+07	7.64	4.745E+03	78.6	2.036E-01	1380.1	7.225E+05
0.600	0.5	1.56E+07	5.11E+07	7.63	4.901E+03	80.9	2.043E-01	1399.3	7.515E+05
0.700	0.5	1.55E+07	5.09E+07	7.63	5.046E+03	82.7	2.057E-01	1414.8	7.753E+05
0.800	0.5	1.55E+07	5.07E+07	7.63	5.166E+03	84.2	2.069E-01	1426.7	7.936E+05
0.900	0.5	1.54E+07	5.04E+07	7.63	5.247E+03	85.5	2.070E-01	1437.1	8.099E+05

Figure A - 23. Run 3043 flow conditions.



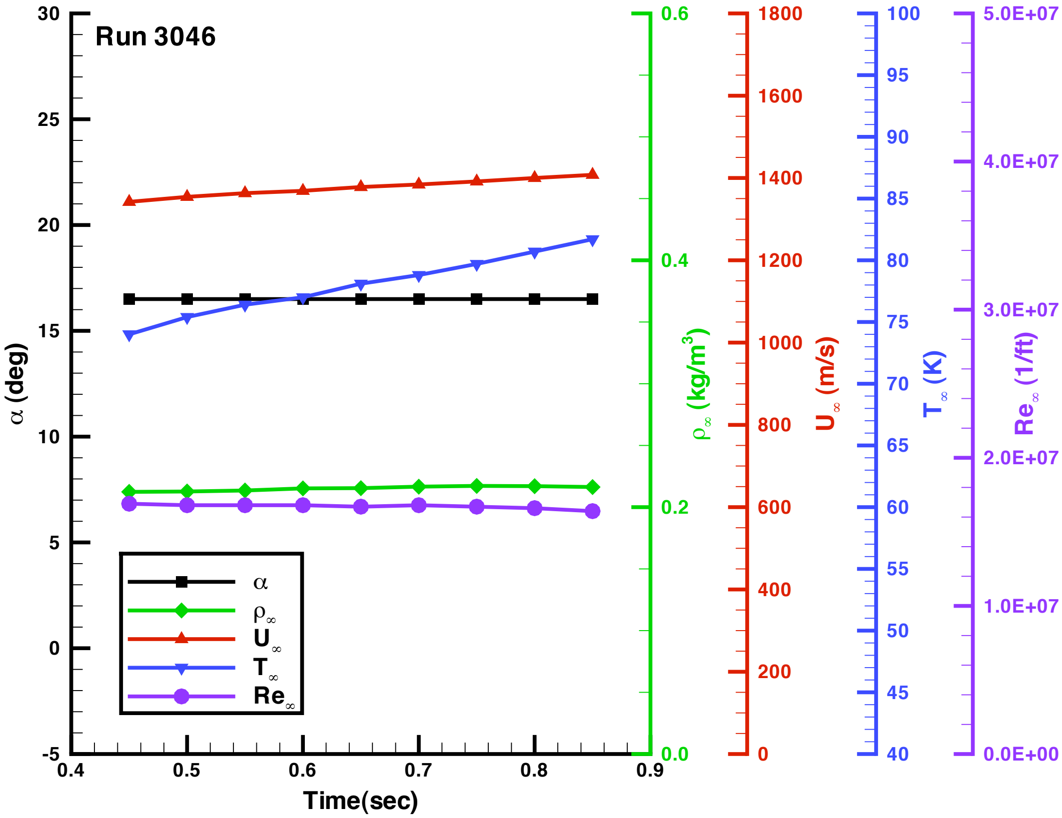
Time (sec)	*α* (°)	Re∞ (1/ft)	Re∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	*ΔH* (MJ/kg)
0.300	0.5	2.16E+07	7.08E+07	7.80	5.397E+03	70.3	2.591E-01	1332.2	6.488E+05
0.350	0.5	2.12E+07	6.95E+07	7.79	5.526E+03	72.2	2.580E-01	1349.3	6.738E+05
0.400	0.5	2.11E+07	6.93E+07	7.78	5.672E+03	73.6	2.598E-01	1361.1	6.913E+05
0.450	0.5	2.10E+07	6.90E+07	7.78	5.820E+03	75.1	2.614E-01	1373.3	7.095E+05
0.500	0.5	2.09E+07	6.87E+07	7.77	5.963E+03	76.5	2.629E-01	1385.4	7.276E+05
0.550	0.5	2.09E+07	6.87E+07	7.77	6.099E+03	77.7	2.648E-01	1395.0	7.422E+05
0.600	0.5	2.09E+07	6.86E+07	7.76	6.231E+03	78.8	2.666E-01	1404.5	7.567E+05
0.650	0.5	2.09E+07	6.86E+07	7.76	6.339E+03	79.8	2.681E-01	1412.1	7.683E+05
0.700	0.5	2.09E+07	6.86E+07	7.76	6.431E+03	80.5	2.694E-01	1418.4	7.781E+05

Figure A - 24. Run 3044 flow conditions.



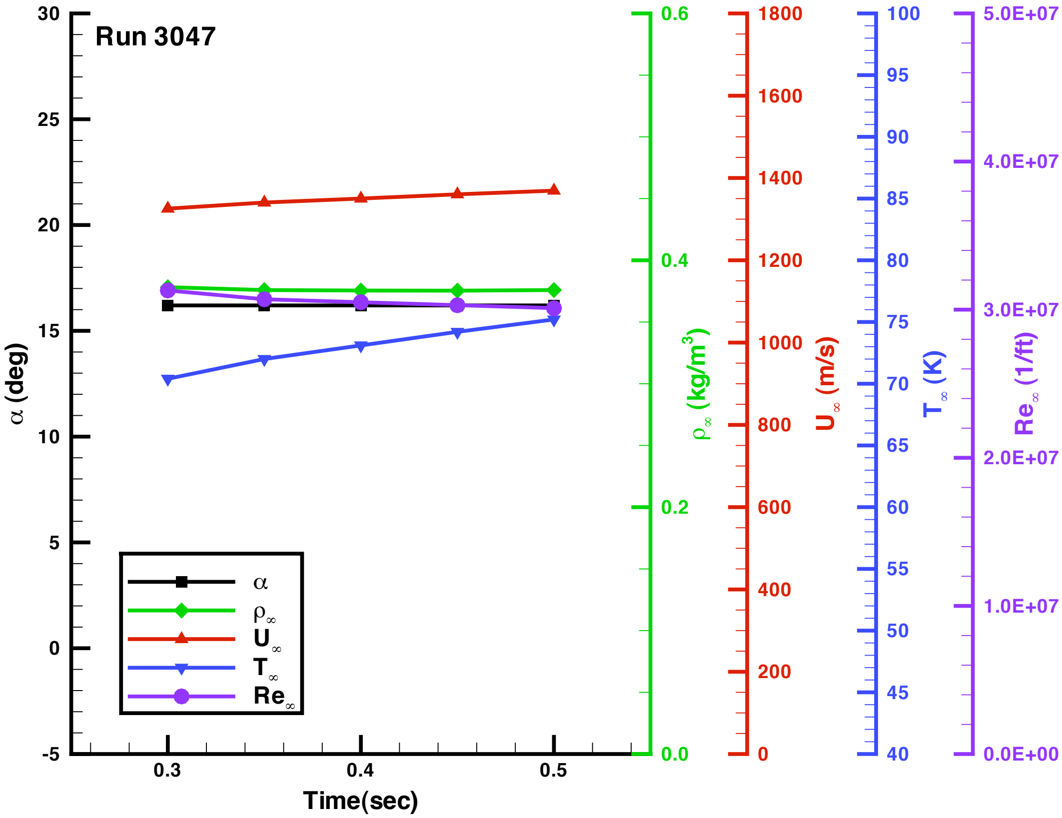
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.250	0.5	4.54E+07	1.49E+08	7.93	1.160E+04	72.1	5.434E-01	1371.3	7.036E+05
0.260	0.5	4.52E+07	1.48E+08	7.93	1.167E+04	72.6	5.429E-01	1376.1	7.107E+05
0.270	0.5	4.50E+07	1.48E+08	7.93	1.175E+04	73.2	5.426E-01	1381.1	7.182E+05
0.280	0.5	4.48E+07	1.47E+08	7.93	1.184E+04	73.8	5.419E-01	1386.7	7.266E+05
0.290	0.5	4.46E+07	1.46E+08	7.93	1.192E+04	74.4	5.415E-01	1392.0	7.345E+05
0.300	0.5	4.44E+07	1.46E+08	7.93	1.200E+04	74.9	5.414E-01	1396.7	7.416E+05

Figure A - 25. Run 3045 flow conditions.



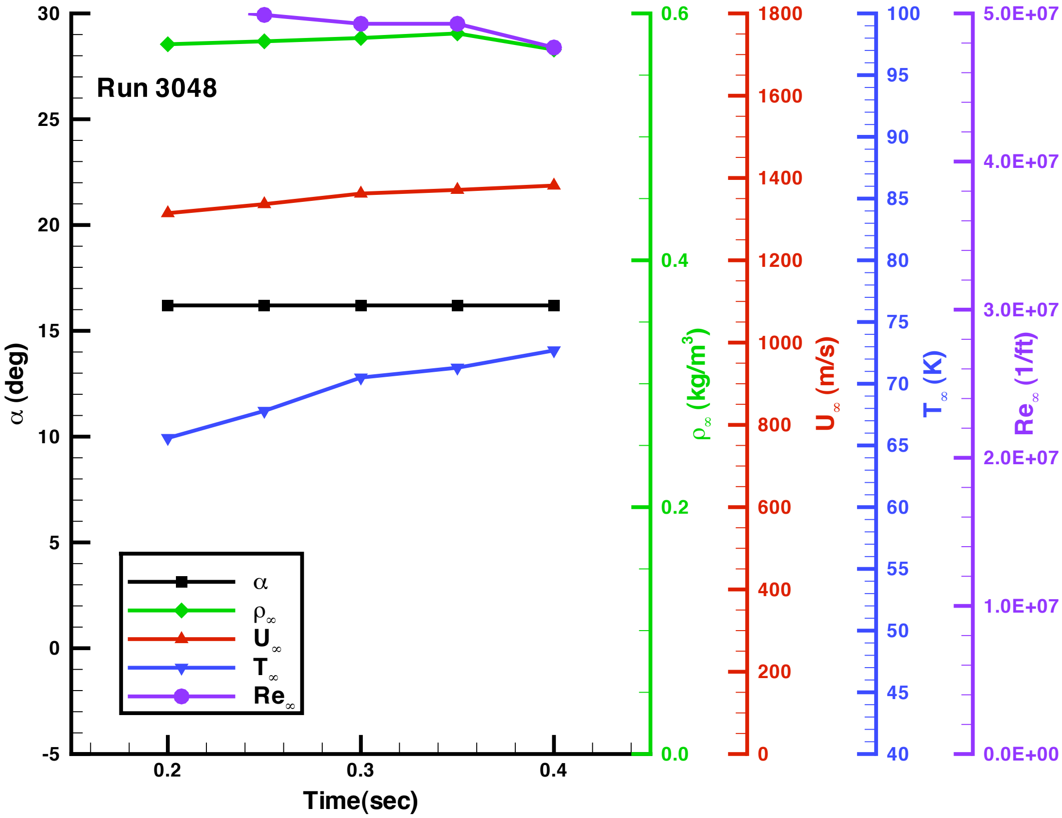
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.450	16.5	1.69E+07	5.56E+07	7.66	4.660E+03	74.0	2.124E-01	1342.0	6.647E+05
0.500	16.5	1.68E+07	5.51E+07	7.65	4.753E+03	75.4	2.127E-01	1354.2	6.825E+05
0.550	16.5	1.68E+07	5.50E+07	7.65	4.837E+03	76.4	2.135E-01	1363.2	6.958E+05
0.600	16.5	1.68E+07	5.52E+07	7.65	4.916E+03	77.0	2.152E-01	1368.8	7.041E+05
0.650	16.5	1.67E+07	5.49E+07	7.65	4.992E+03	78.1	2.154E-01	1378.1	7.180E+05
0.700	16.5	1.68E+07	5.50E+07	7.65	5.065E+03	78.8	2.166E-01	1384.2	7.271E+05
0.750	16.5	1.67E+07	5.48E+07	7.65	5.133E+03	79.7	2.172E-01	1391.7	7.384E+05
0.800	16.5	1.66E+07	5.44E+07	7.64	5.194E+03	80.7	2.170E-01	1400.1	7.512E+05
0.850	16.5	1.64E+07	5.39E+07	7.64	5.239E+03	81.7	2.163E-01	1407.8	7.630E+05

Figure A - 26. Run 3046 flow conditions.



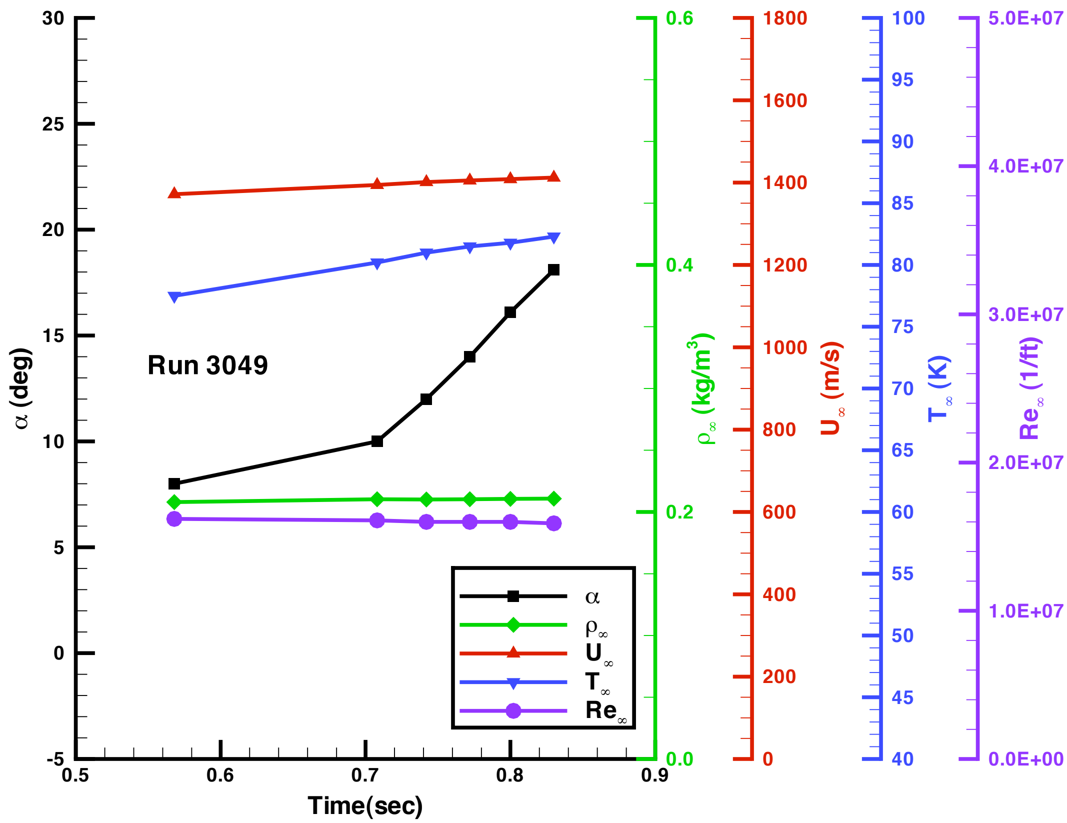
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.300	16.2	3.13E+07	1.03E+08	7.76	7.884E+03	70.4	3.782E-01	1325.6	6.391E+05
0.350	16.2	3.07E+07	1.01E+08	7.75	8.019E+03	72.0	3.759E-01	1340.4	6.604E+05
0.400	16.2	3.05E+07	1.00E+08	7.75	8.131E+03	73.1	3.755E-01	1350.1	6.746E+05
0.450	16.2	3.03E+07	9.93E+07	7.75	8.257E+03	74.2	3.754E-01	1360.4	6.897E+05
0.500	16.2	3.01E+07	9.87E+07	7.75	8.378E+03	75.2	3.759E-01	1369.4	7.030E+05

Figure A - 27. Run 3047 flow conditions.



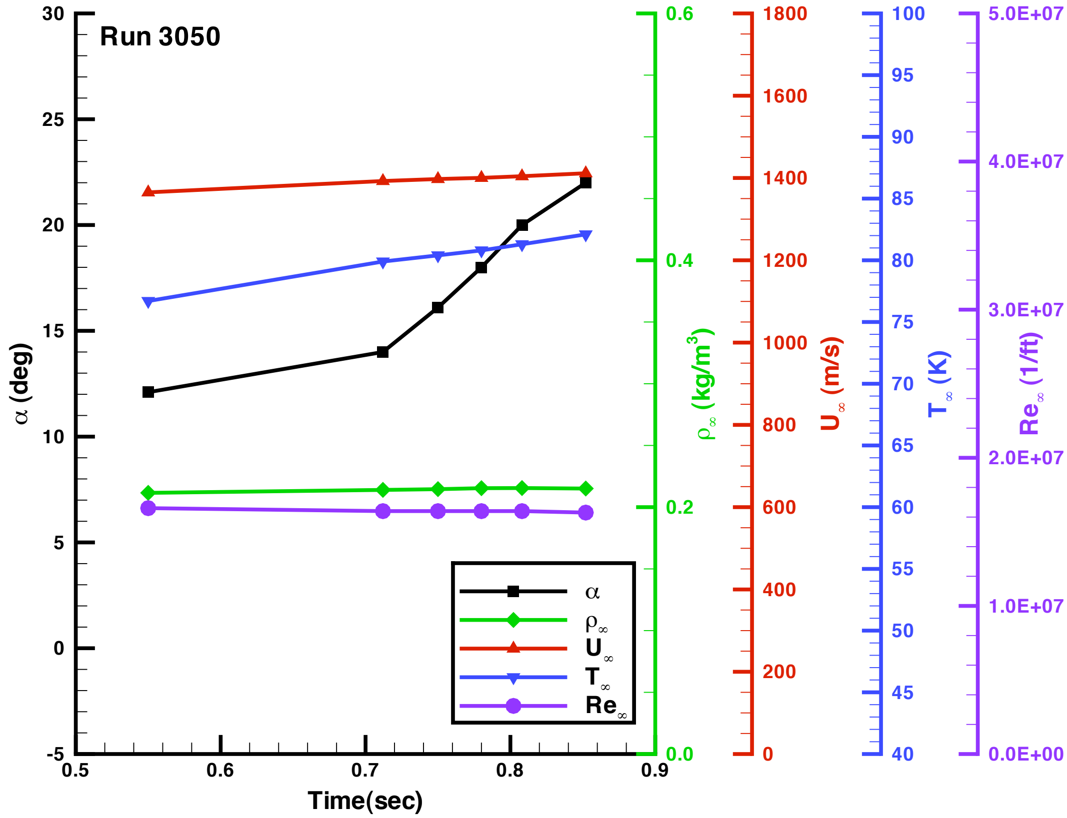
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.200	16.2	5.05E+07	1.66E+08	7.97	1.117E+04	65.6	5.750E-01	1314.5	6.195E+05
0.250	16.2	4.99E+07	1.64E+08	7.97	1.159E+04	67.8	5.774E-01	1336.5	6.508E+05
0.300	16.2	4.93E+07	1.62E+08	7.97	1.209E+04	70.5	5.801E-01	1362.2	6.882E+05
0.350	16.2	4.93E+07	1.62E+08	7.98	1.232E+04	71.3	5.838E-01	1371.2	7.014E+05
0.400	16.2	4.77E+07	1.56E+08	7.96	1.227E+04	72.7	5.707E-01	1381.7	7.172E+05

Figure A - 28. Run 3048 flow conditions.



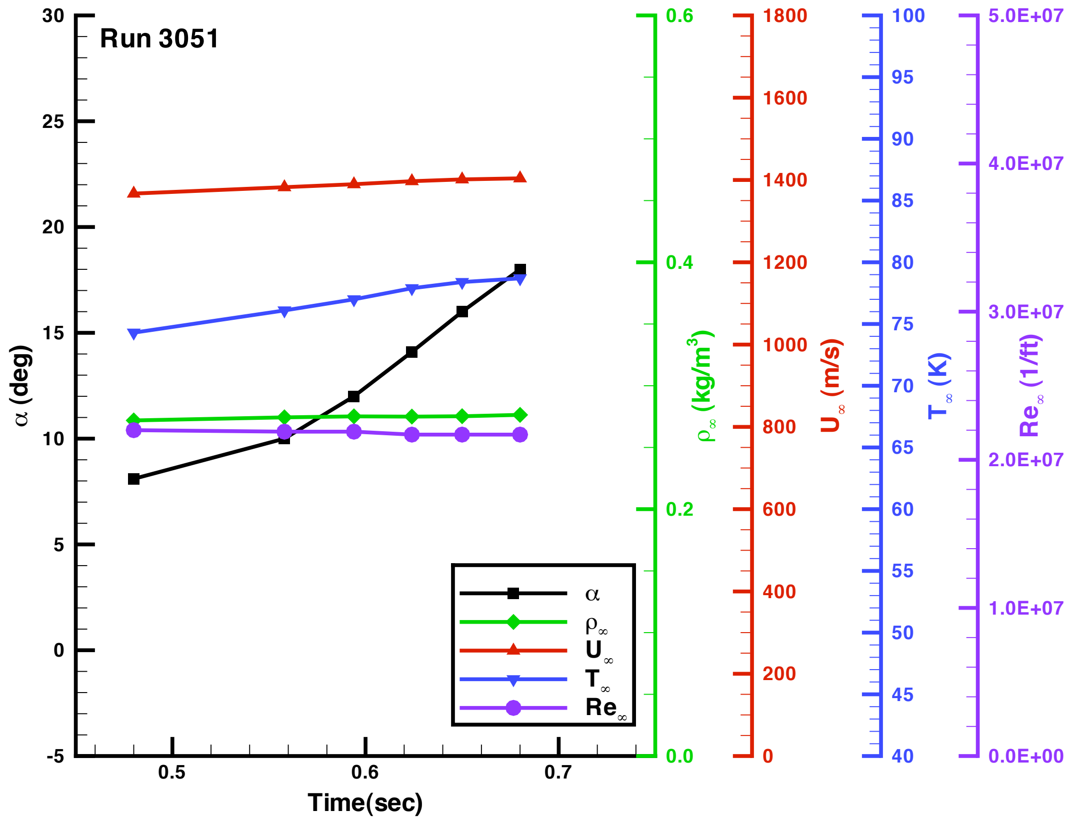
Time (sec)	α (°)	Re$_\infty$ (1/ft)	Re$_\infty$ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.568	8.0	1.62E+07	5.32E+07	7.64	4.781E+03	77.5	2.080E-01	1371.8	6.281E+05
0.708	10.0	1.61E+07	5.29E+07	7.64	5.000E+03	80.2	2.103E-01	1394.3	6.593E+05
0.742	12.0	1.60E+07	5.25E+07	7.64	5.046E+03	81.0	2.101E-01	1401.3	6.690E+05
0.772	14.0	1.60E+07	5.24E+07	7.64	5.082E+03	81.5	2.103E-01	1405.2	6.744E+05
0.800	16.1	1.60E+07	5.24E+07	7.64	5.113E+03	81.8	2.106E-01	1408.4	6.790E+05
0.830	18.1	1.59E+07	5.23E+07	7.64	5.145E+03	82.3	2.108E-01	1412.1	6.842E+05

Figure A - 29. Run 3049 flow conditions.



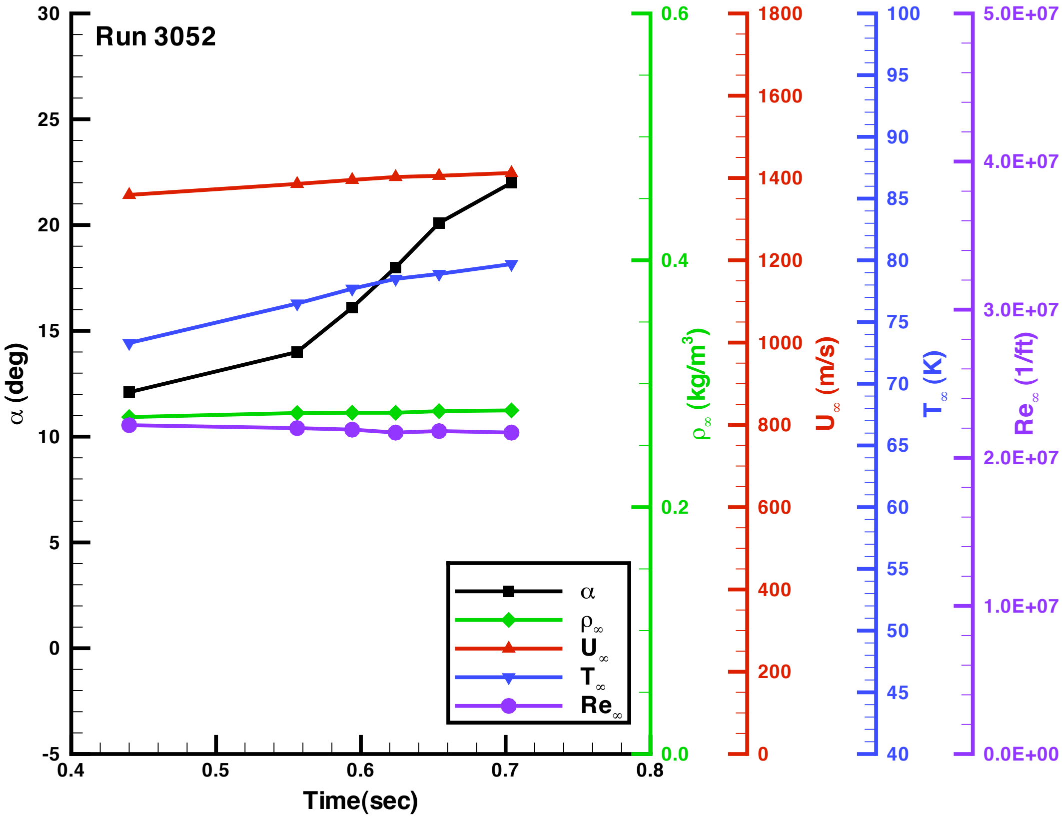
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.550	12.1	1.66E+07	5.44E+07	7.65	4.810E+03	76.7	2.116E-01	1365.1	6.190E+05
0.712	14.0	1.64E+07	5.39E+07	7.64	5.069E+03	79.9	2.140E-01	1392.7	6.571E+05
0.750	16.1	1.64E+07	5.39E+07	7.64	5.120E+03	80.4	2.146E-01	1397.5	6.636E+05
0.780	18.0	1.64E+07	5.40E+07	7.64	5.160E+03	80.8	2.154E-01	1400.3	6.677E+05
0.808	20.0	1.64E+07	5.38E+07	7.64	5.194E+03	81.3	2.155E-01	1404.3	6.733E+05
0.852	22.0	1.63E+07	5.34E+07	7.64	5.239E+03	82.1	2.151E-01	1411.5	6.834E+05

Figure A - 30. Run 3050 flow conditions.



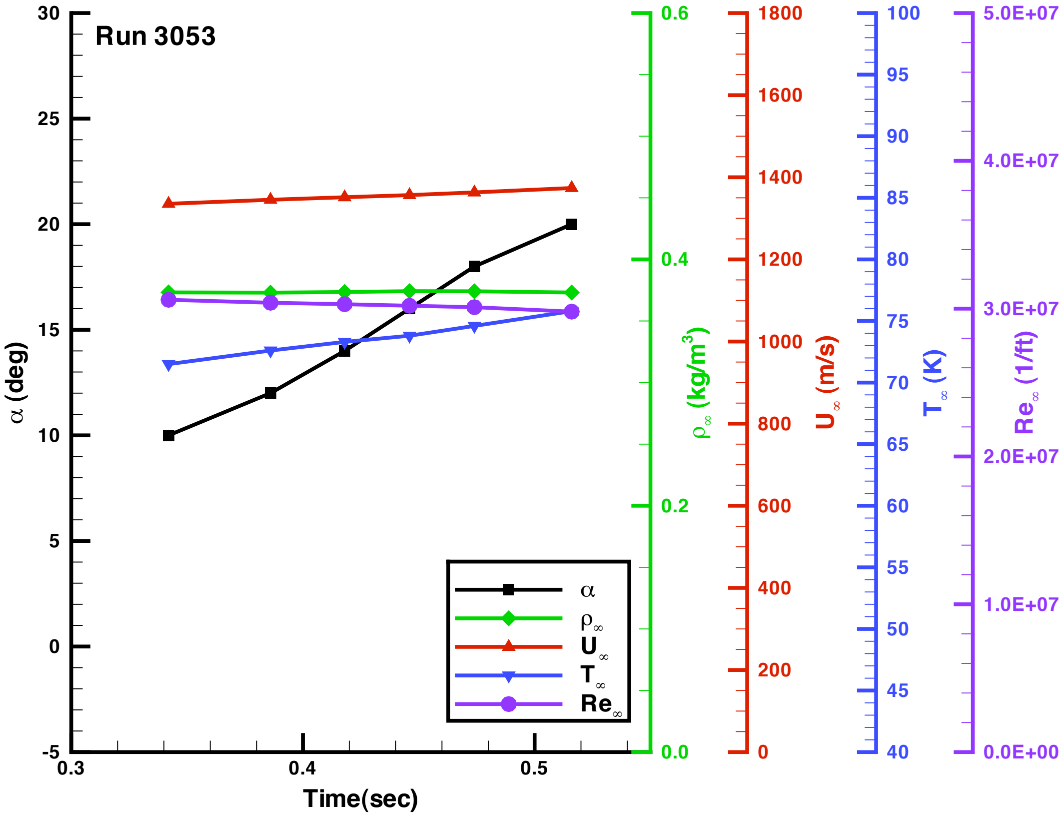
Time (sec)	α (°)	Re_∞ (1/ft)	Re_∞ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.480	8.1	2.20E+07	7.22E+07	7.78	5.990E+03	74.3	2.719E-01	1367.0	6.216E+05
0.558	10.0	2.19E+07	7.20E+07	7.78	6.191E+03	76.1	2.744E-01	1382.5	6.428E+05
0.594	12.0	2.19E+07	7.17E+07	7.77	6.280E+03	77.0	2.752E-01	1389.8	6.529E+05
0.624	14.1	2.17E+07	7.12E+07	7.77	6.349E+03	77.9	2.750E-01	1397.2	6.633E+05
0.650	16.0	2.17E+07	7.11E+07	7.77	6.399E+03	78.4	2.753E-01	1401.5	6.692E+05
0.680	18.0	2.17E+07	7.12E+07	7.77	6.450E+03	78.7	2.764E-01	1404.1	6.728E+05

Figure A - 31. Run 3051 flow conditions.



Time (sec)	α (°)	Re$_\infty$ (1/ft)	Re$_\infty$ (1/m)	M_∞	P_∞ (kPa)	T_∞ (K)	ρ_∞ (kg/m^3)	U_∞ (m/s)	ΔH (MJ/kg)
0.440	12.1	2.22E+07	7.30E+07	7.79	5.934E+03	73.3	2.730E-01	1358.9	6.105E+05
0.556	14.0	2.20E+07	7.23E+07	7.78	6.265E+03	76.5	2.763E-01	1385.6	6.471E+05
0.594	16.1	2.19E+07	7.17E+07	7.77	6.364E+03	77.7	2.765E-01	1395.4	6.607E+05
0.624	18.0	2.17E+07	7.14E+07	7.77	6.436E+03	78.5	2.765E-01	1402.4	6.705E+05
0.654	20.1	2.18E+07	7.15E+07	7.77	6.496E+03	78.9	2.778E-01	1405.3	6.747E+05
0.704	22.0	2.17E+07	7.13E+07	7.76	6.578E+03	79.7	2.784E-01	1412.1	6.841E+05

Figure A - 32. Run 3052 flow conditions.

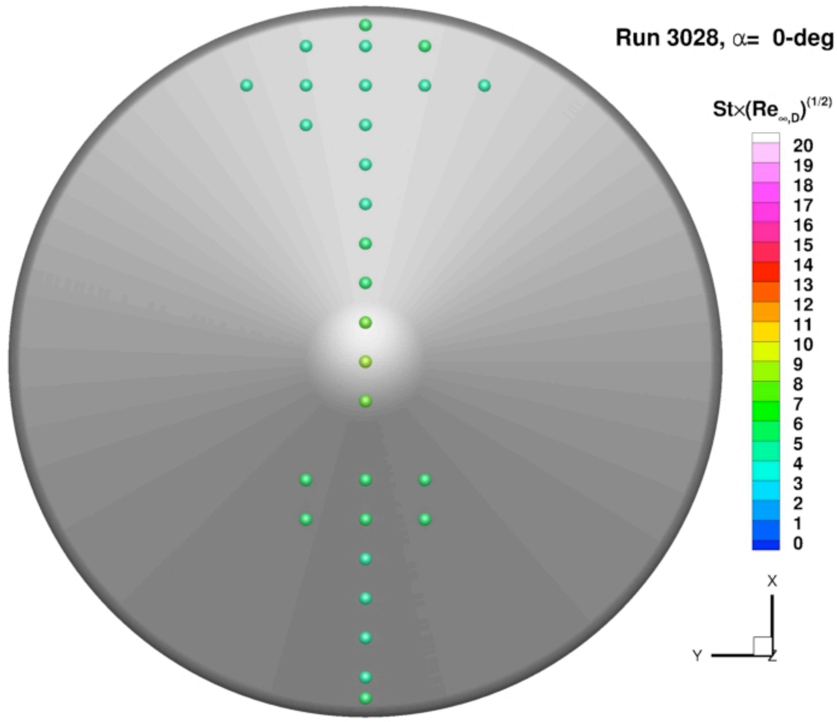


Time (sec)	*α* (°)	Re∞ (1/ft)	Re∞ (1/m)	*M*∞	*P*∞ (kPa)	*T*∞ (K)	*ρ*∞ (kg/m^3)	*U*∞ (m/s)	*ΔH* (MJ/kg)
0.342	10.0	3.06E+07	1.00E+08	7.75	7.910E+03	71.5	3.732E-01	1335.5	5.790E+05
0.386	12.0	3.04E+07	9.96E+07	7.75	8.023E+03	72.6	3.730E-01	1345.3	5.922E+05
0.418	14.0	3.03E+07	9.93E+07	7.75	8.108E+03	73.3	3.735E-01	1351.4	6.004E+05
0.446	16.0	3.02E+07	9.92E+07	7.75	8.186E+03	73.8	3.742E-01	1356.6	6.074E+05
0.474	18.0	3.01E+07	9.87E+07	7.75	8.263E+03	74.6	3.741E-01	1363.1	6.163E+05
0.516	20.0	2.98E+07	9.76E+07	7.75	8.376E+03	75.8	3.731E-01	1373.8	6.309E+05

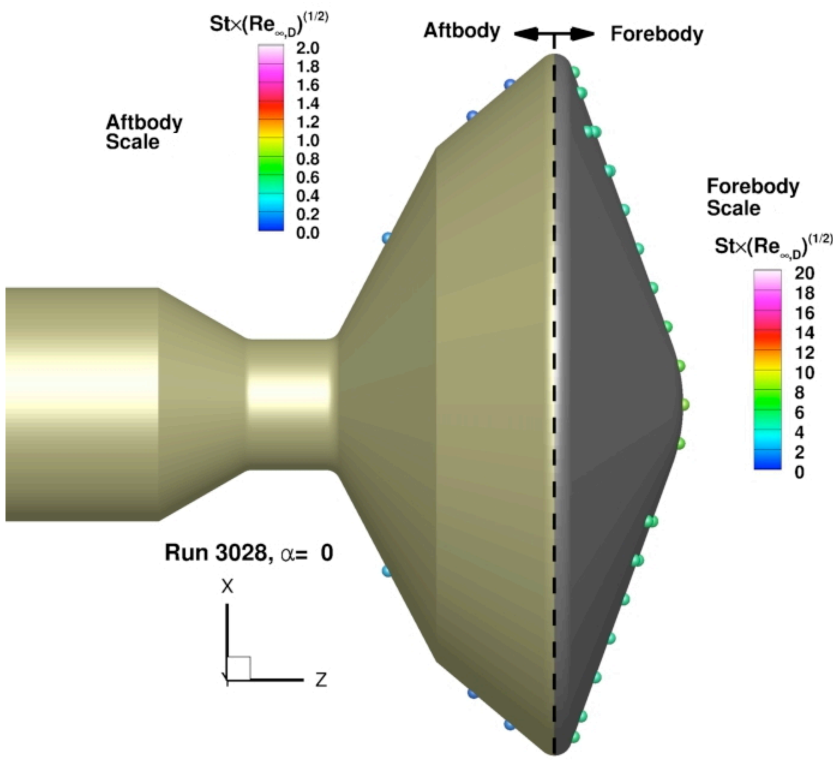
Figure A - 33. Run 3053 flow conditions.

Appendix B: Graphical Data Plots

Graphic representations of the heating data are given Figure B - 1 through Figure B - 137. Each gauge is represented by a symbol that is color-coded according to measured heating levels. Owing to the large differences in heating levels between the forebody and aftbody of the model, separate color-scales are provided for these regions.

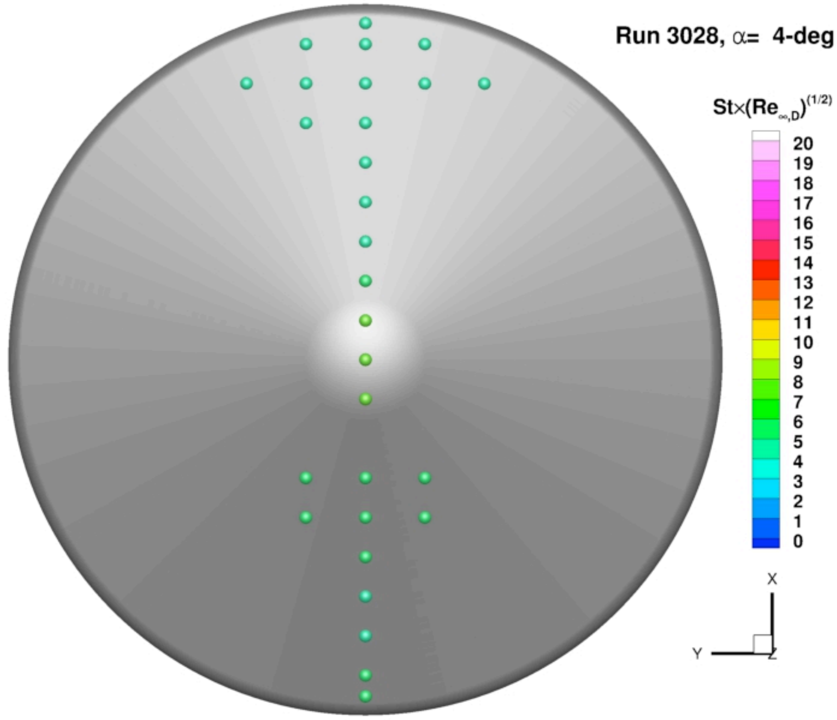


a) **Forebody**

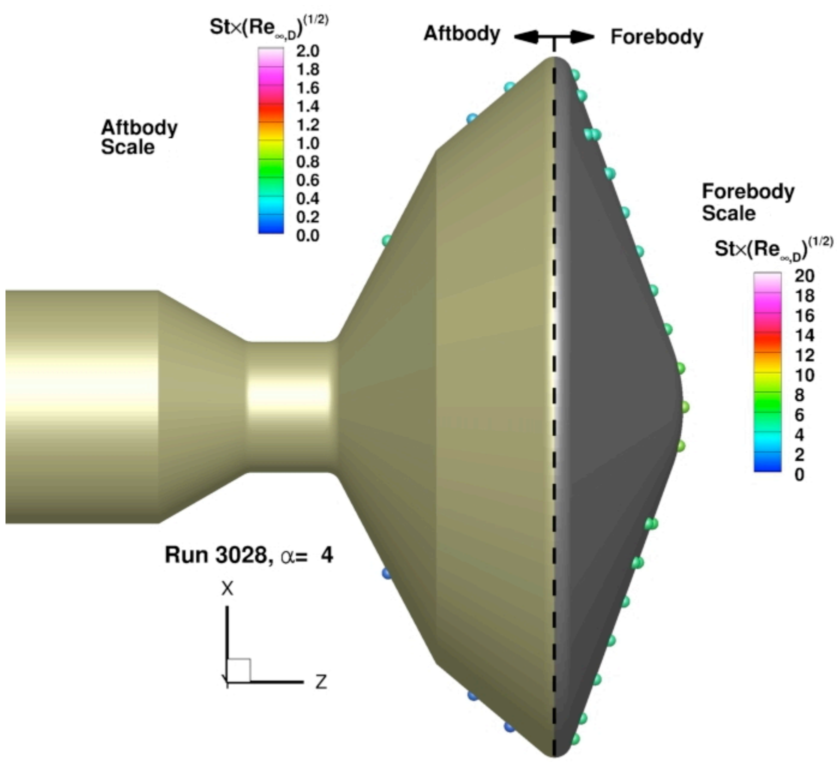


b) **Aftbody**

Figure B - 1. Run 3028 heating data, Mach 8 nozzle, $Re_\infty = 4.1\times10^6$/ft, $\alpha = 0°$.

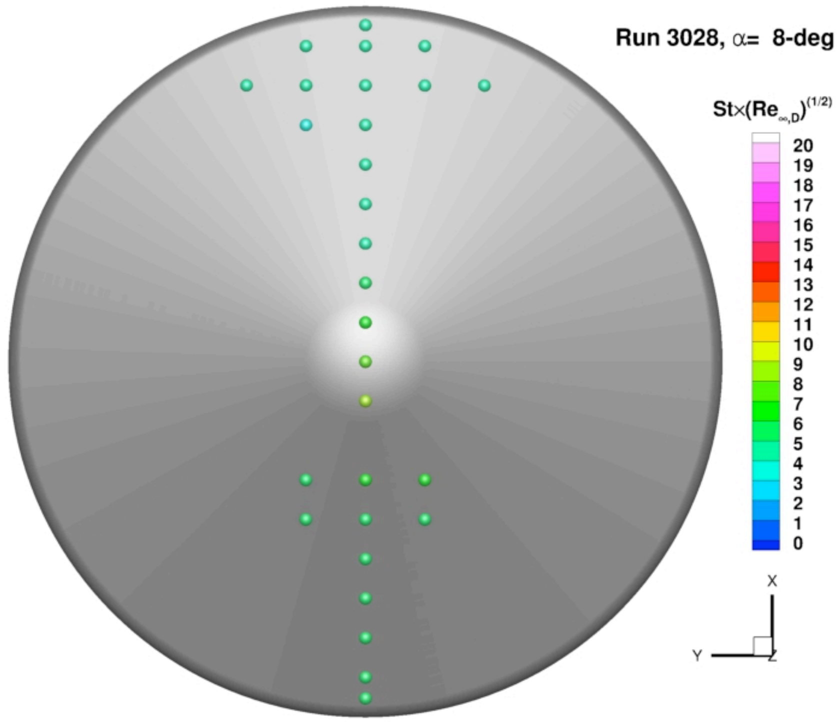


a) **Forebody**

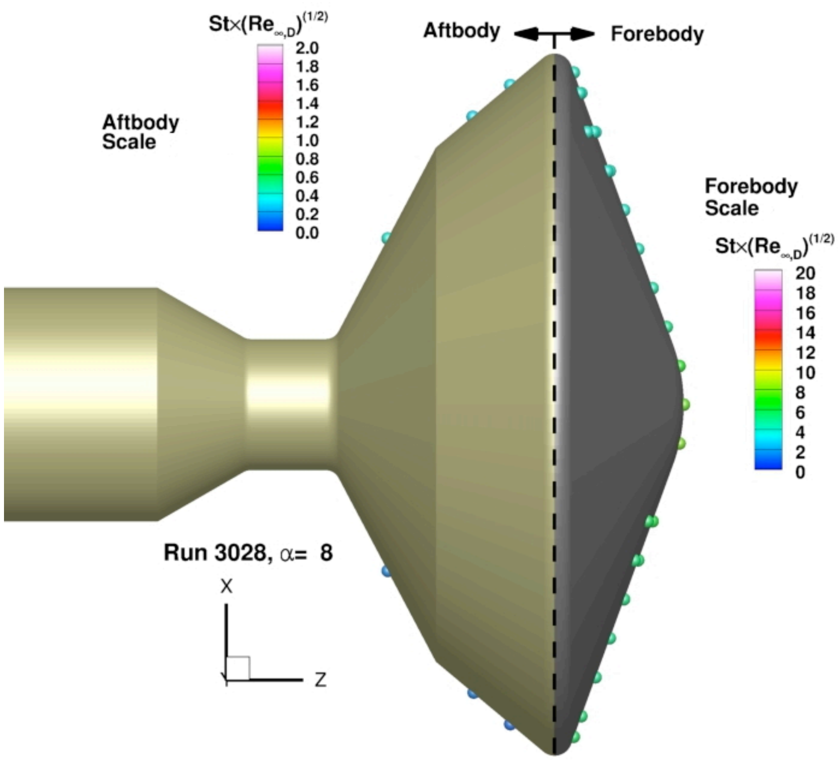


b) **Aftbody**

Figure B - 2. Run 3028 heating data, Mach 8 nozzle, $Re_\infty = 4.1\times10^6$/ft, $\alpha = 4°$.

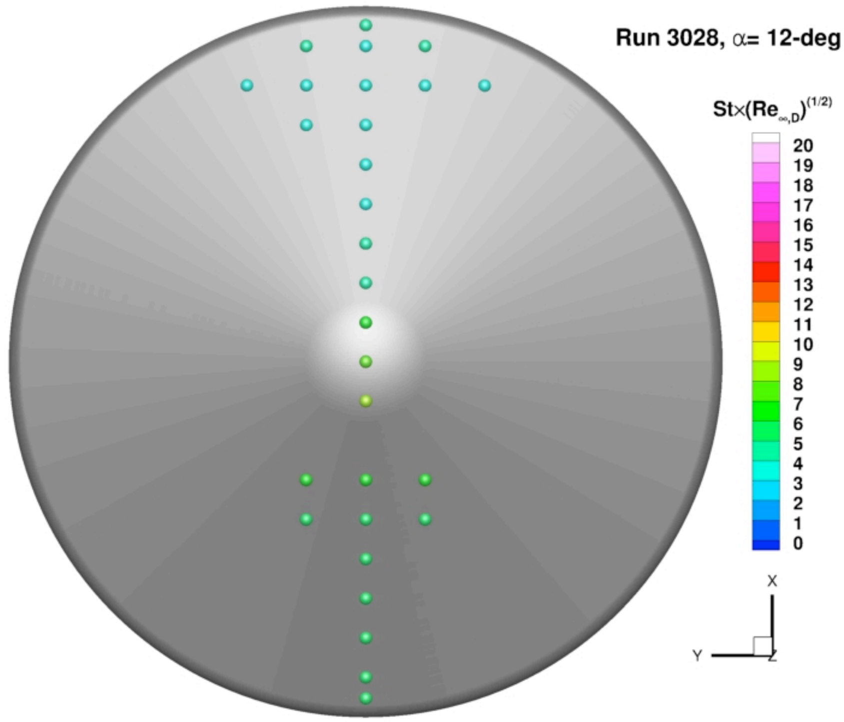


a) **Forebody**

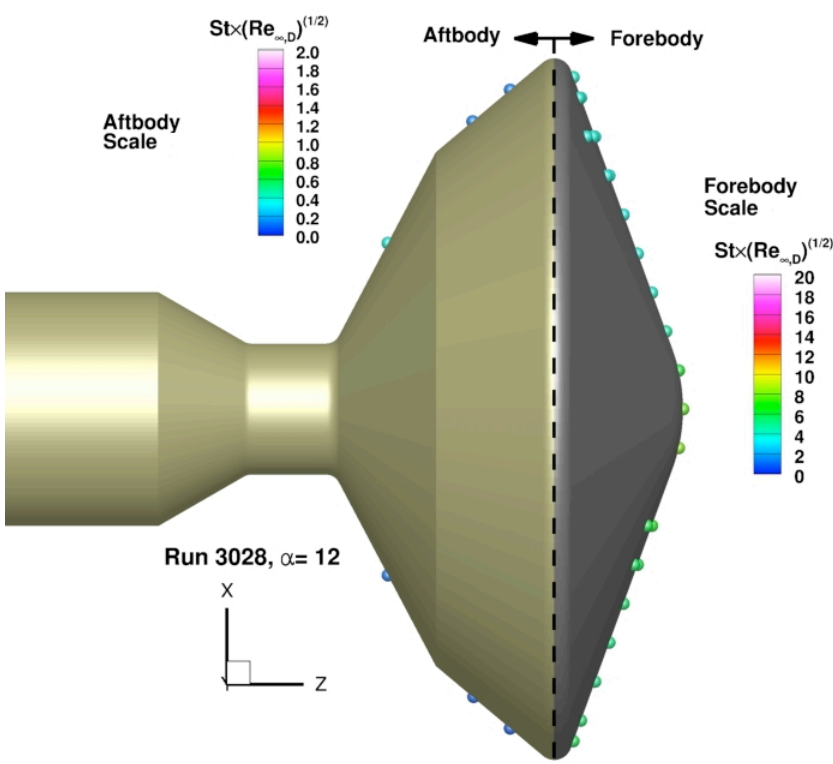


b) **Aftbody**

Figure B - 3. Run 3028 heating data, Mach 8 nozzle, $Re_\infty = 4.1\times10^6$/ft, α = 8°.

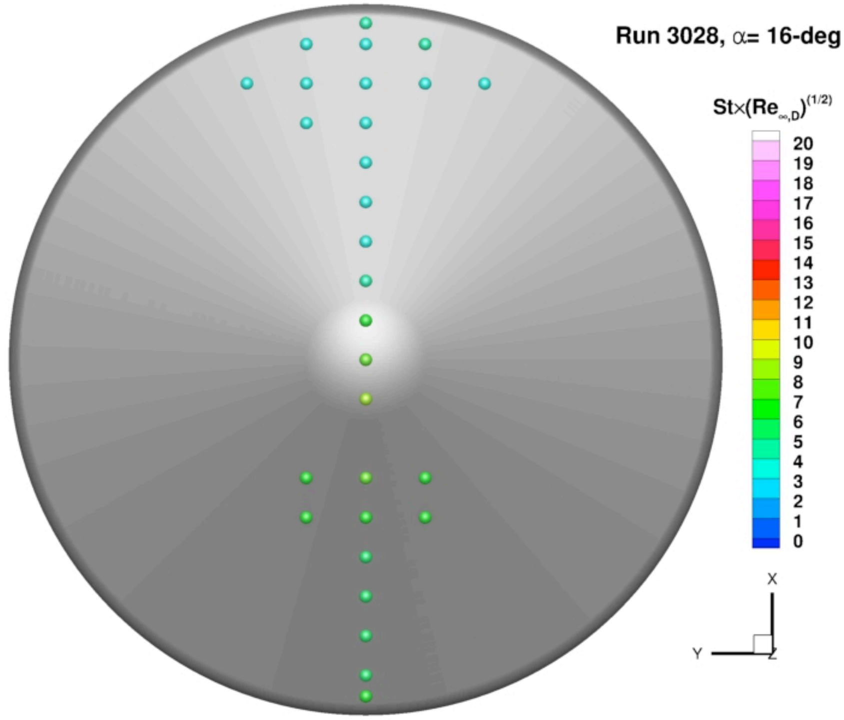


a) **Forebody**

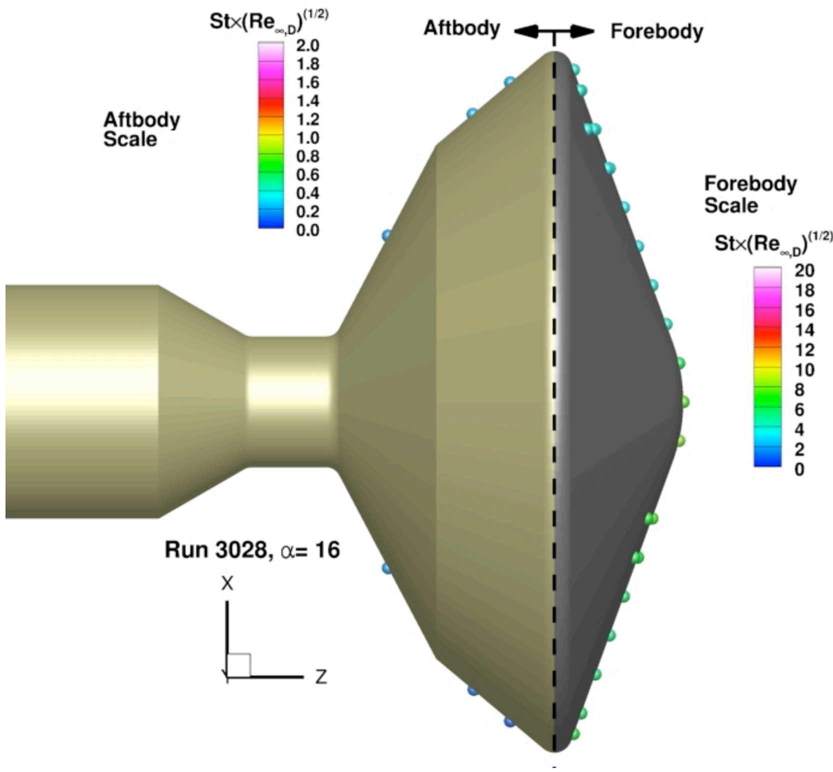


b) **Aftbody**

Figure B - 4. Run 3028 heating data, Mach 8 nozzle, $Re_\infty = 4.1\times10^6$/ft, α = 12°.

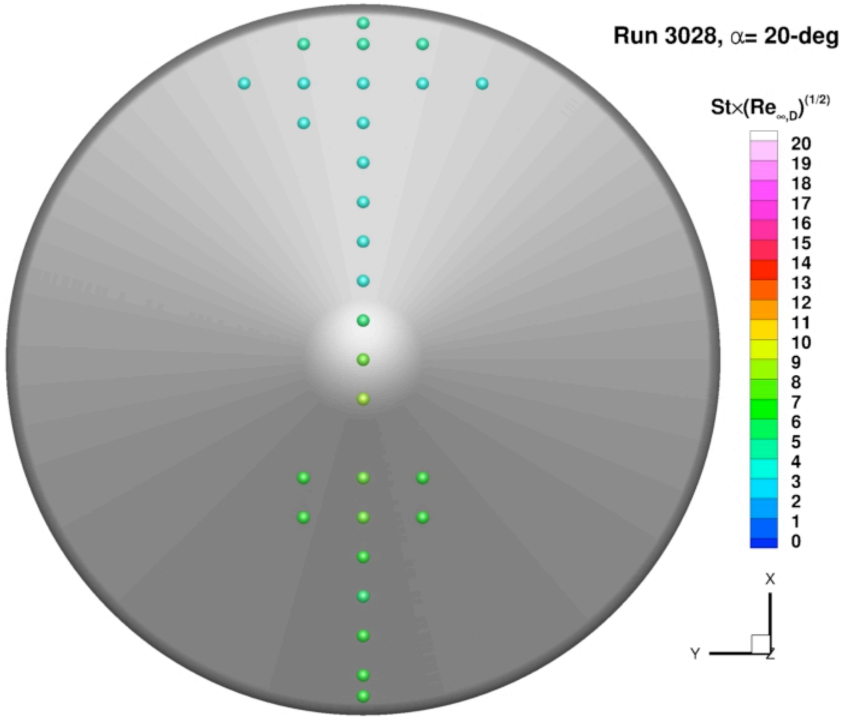


a) **Forebody**

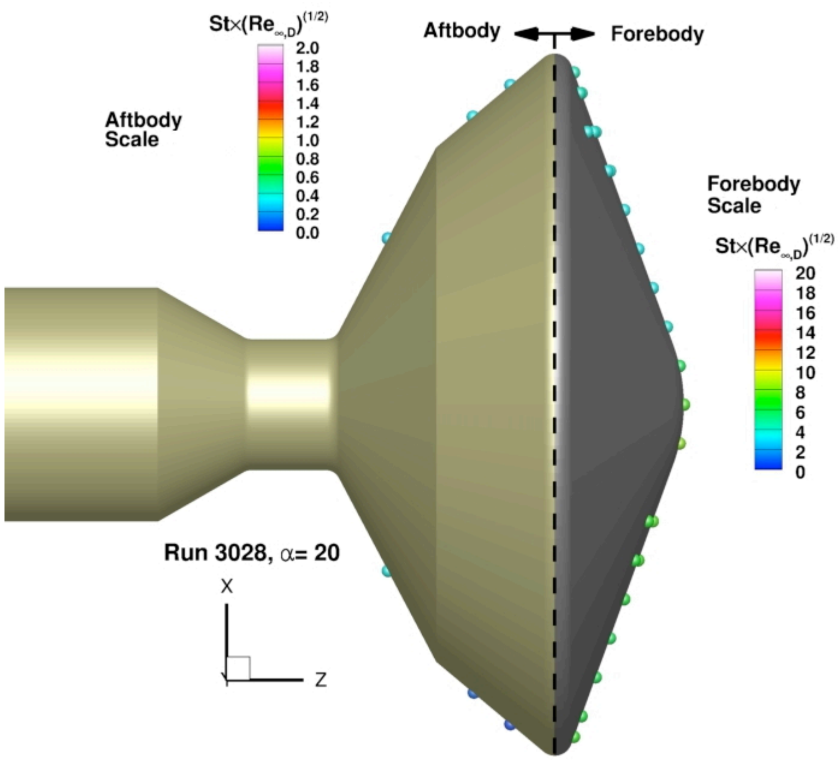


b) **Aftbody**

Figure B - 5. Run 3028 heating data, Mach 8 nozzle, $Re_\infty = 4.1\times10^6$/ft, α = 16°.

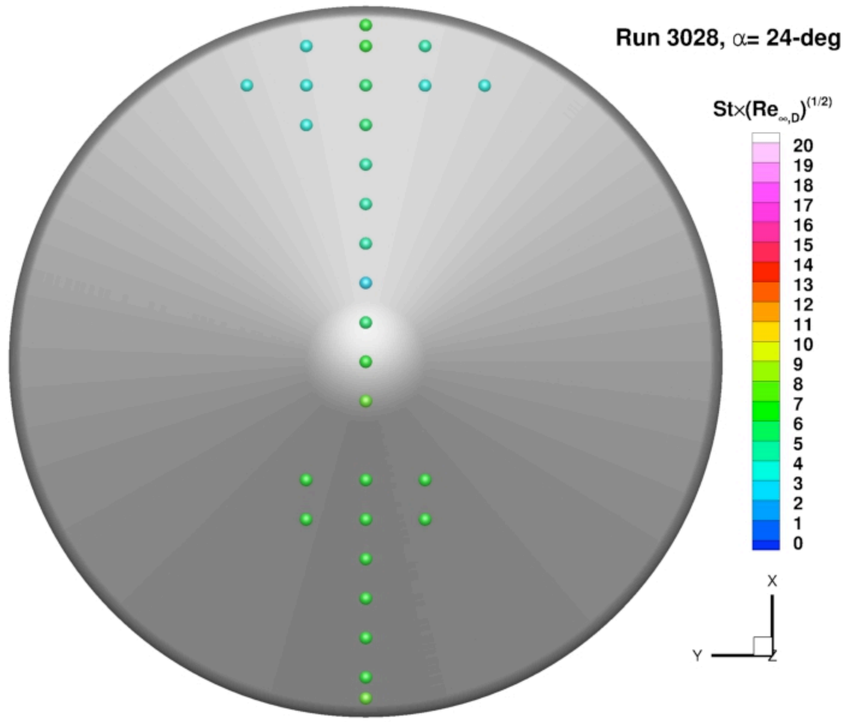


a) **Forebody**

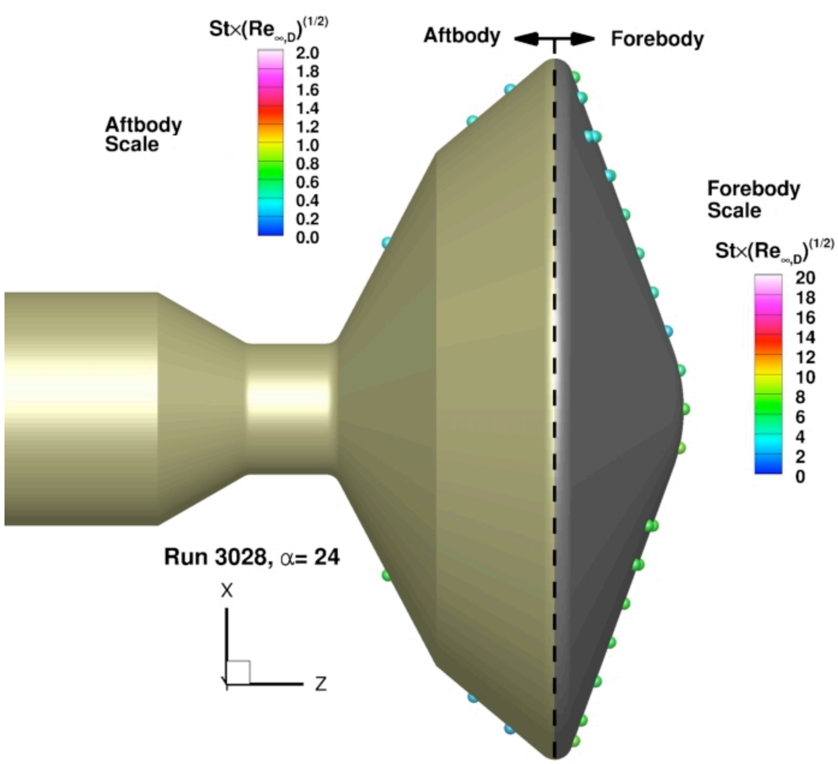


b) **Aftbody**

Figure B - 6. Run 3028 heating data, Mach 8 nozzle, $Re_\infty = 4.1\times10^6$/ft, α = 20°.

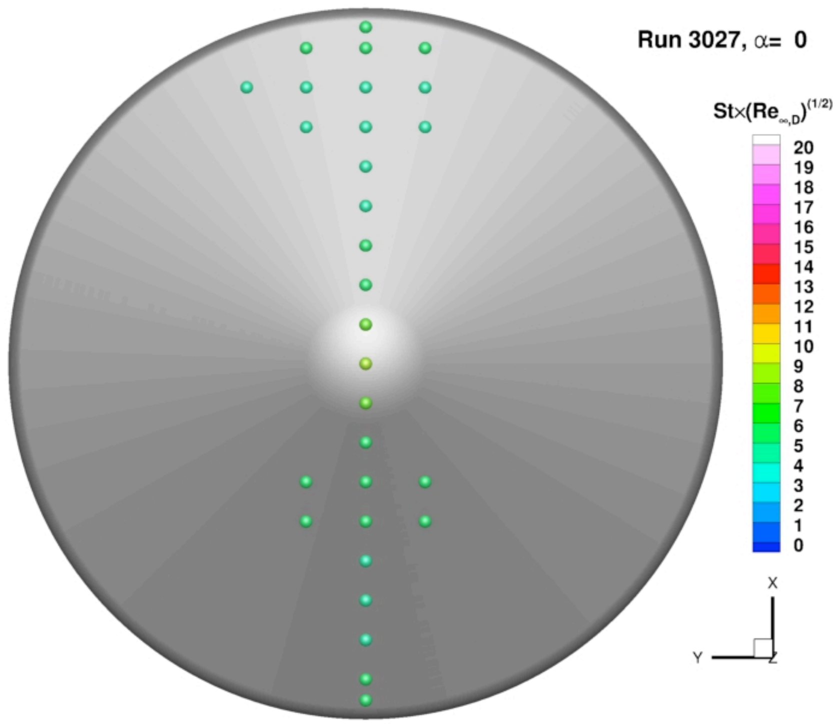


a) **Forebody**

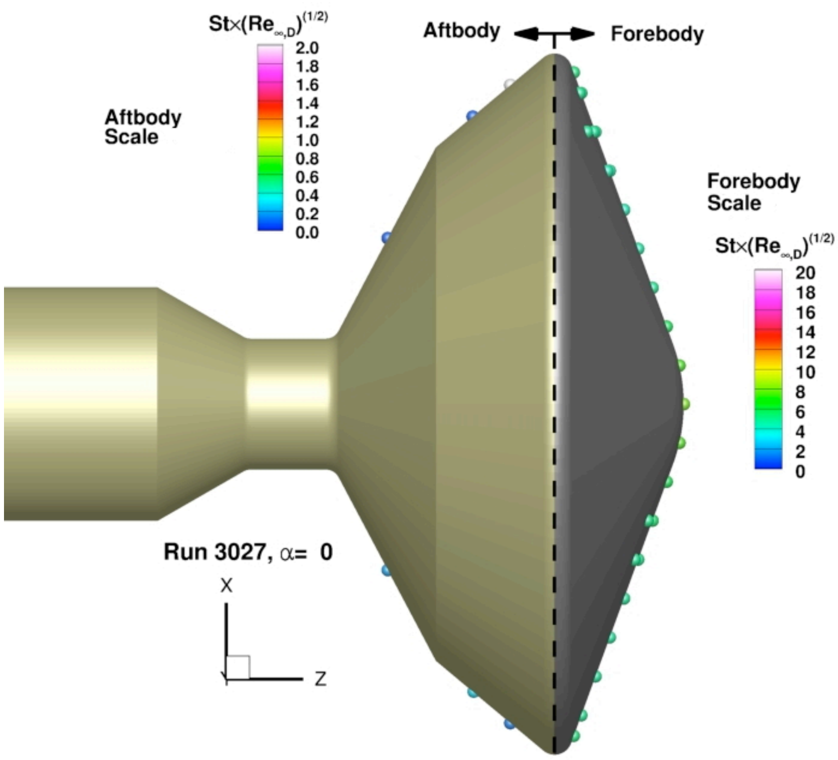


b) **Aftbody**

Figure B - 7. Run 3028 heating data, Mach 8 nozzle, $Re_\infty = 4.1\times10^6$/ft, $\alpha = 24°$.

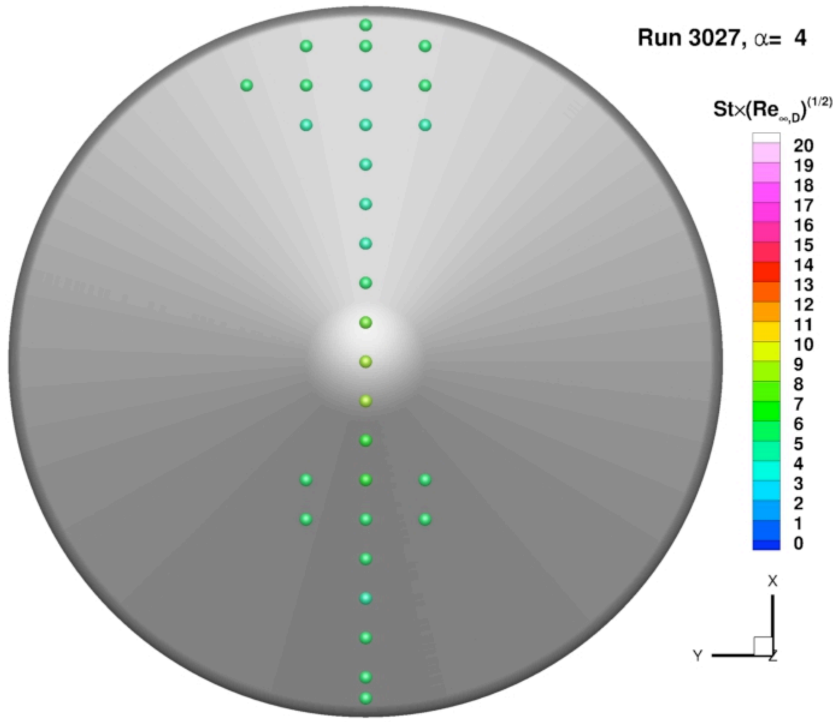


a) **Forebody**

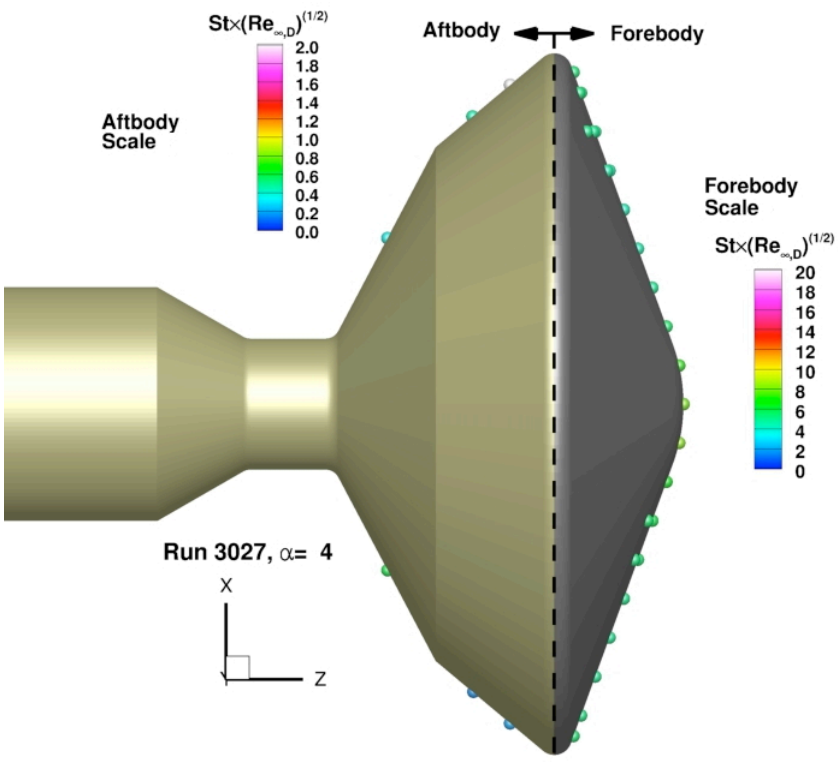


b) **Aftbody**

Figure B - 8. Run 3027 heating data, Mach 8 nozzle, Re$_\infty$ = 8.0×10^6/ft, α = 0°.

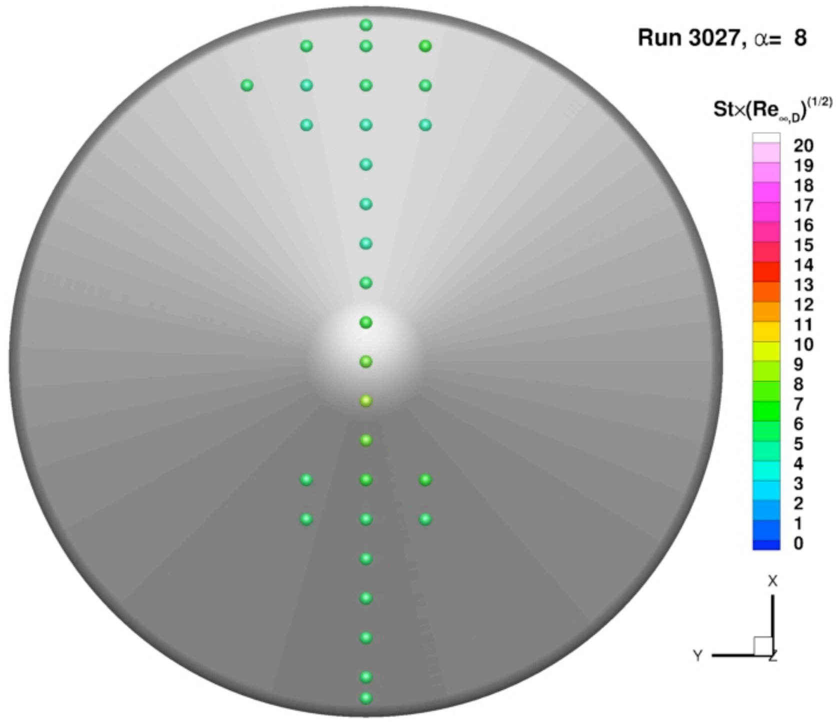


a) **Forebody**

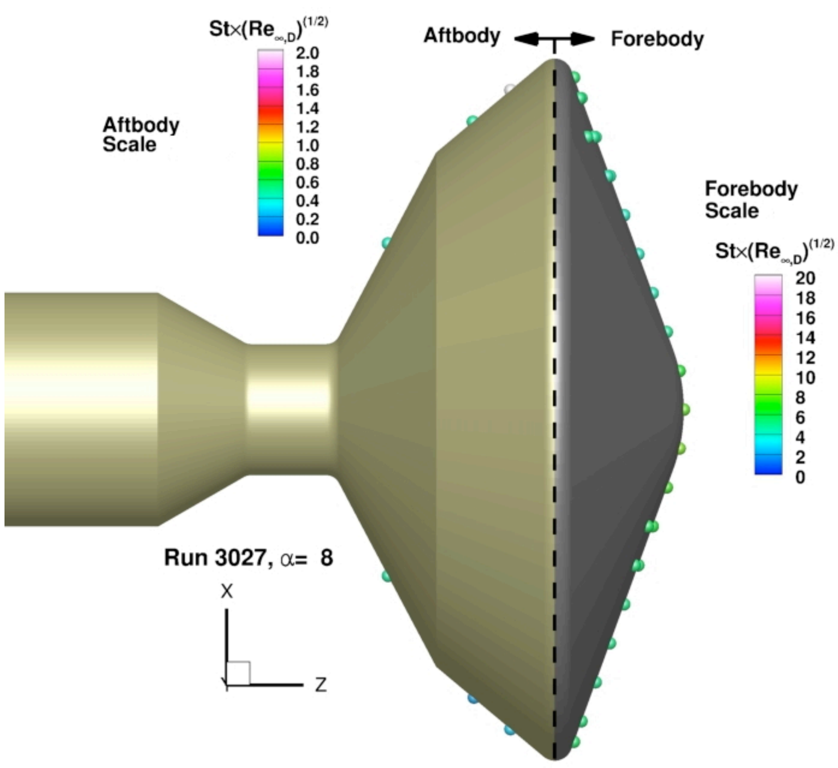


b) **Aftbody**

Figure B - 9. Run 3027 heating data, Mach 8 nozzle, $Re_\infty = 8.0\times10^6$/ft, α = 4°.

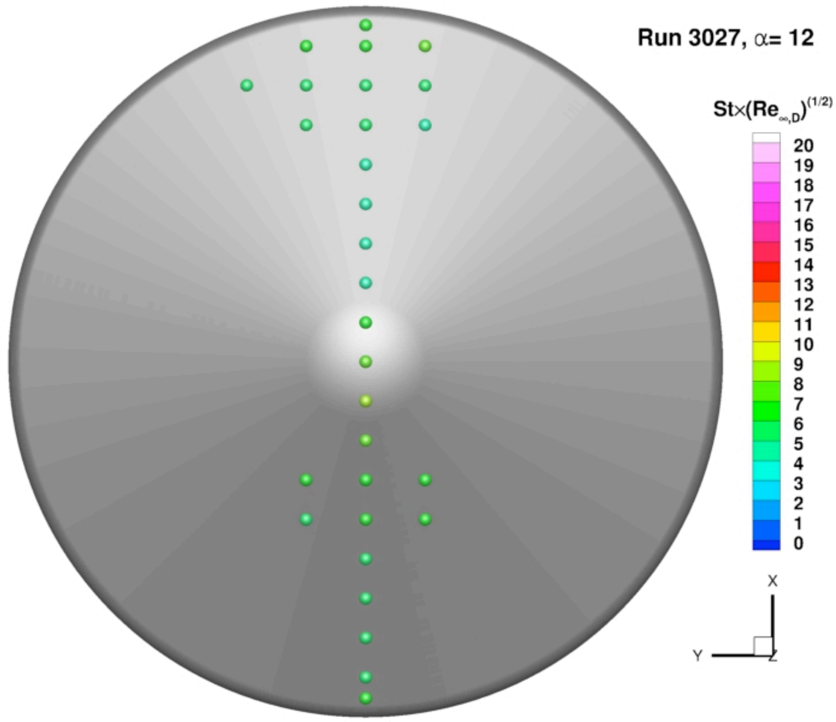


a) **Forebody**

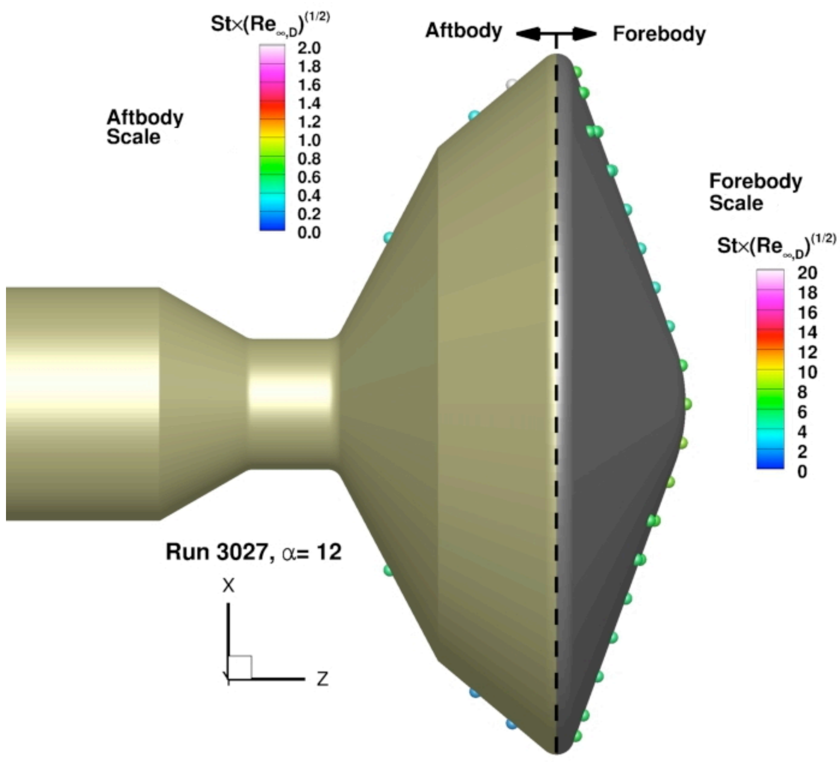


b) **Aftbody**

Figure B - 10. Run 3027 heating data, Mach 8 nozzle, $Re_\infty = 8.0\times10^6$/ft, $\alpha = 8°$.

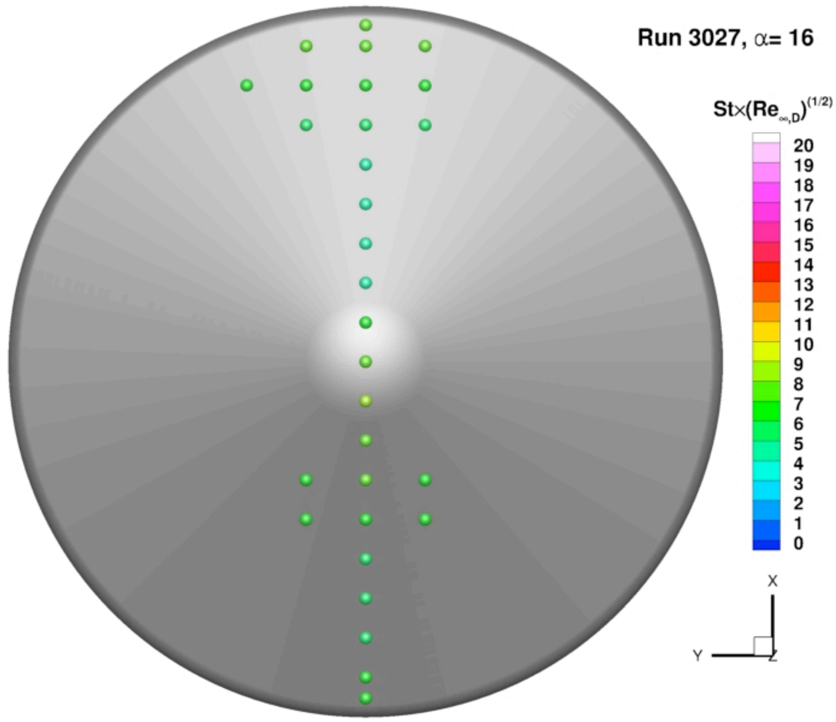


a) **Forebody**

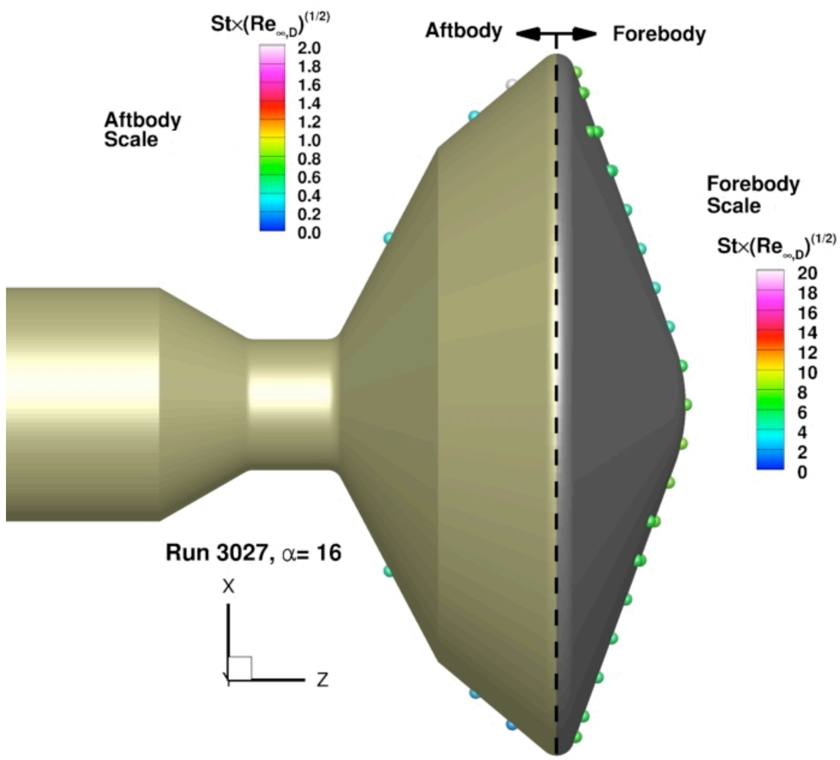


b) **Aftbody**

Figure B - 11. Run 3027 heating data, Mach 8 nozzle, $Re_\infty = 8.0\times10^6$/ft, α = 12°.

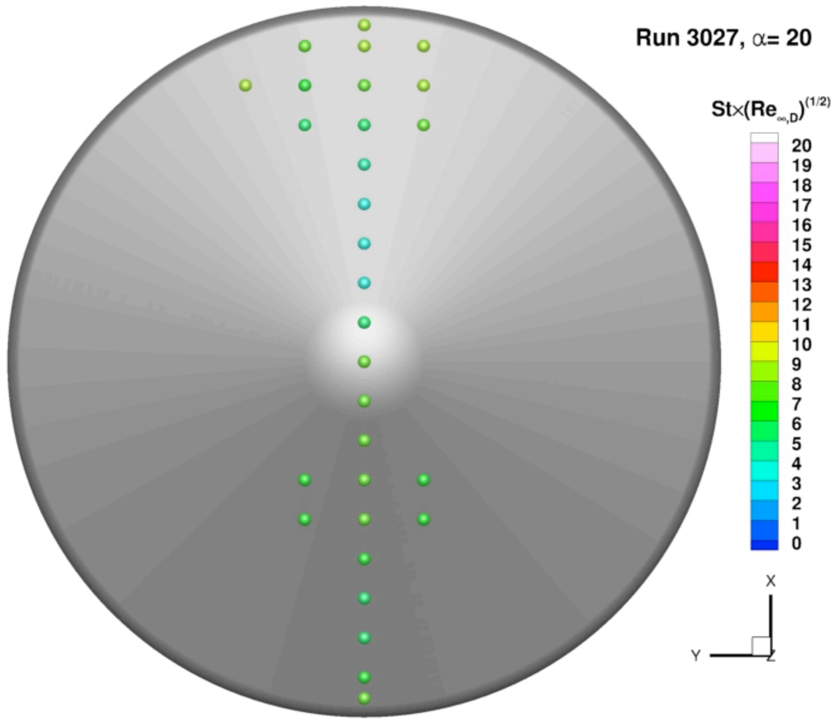


a) **Forebody**

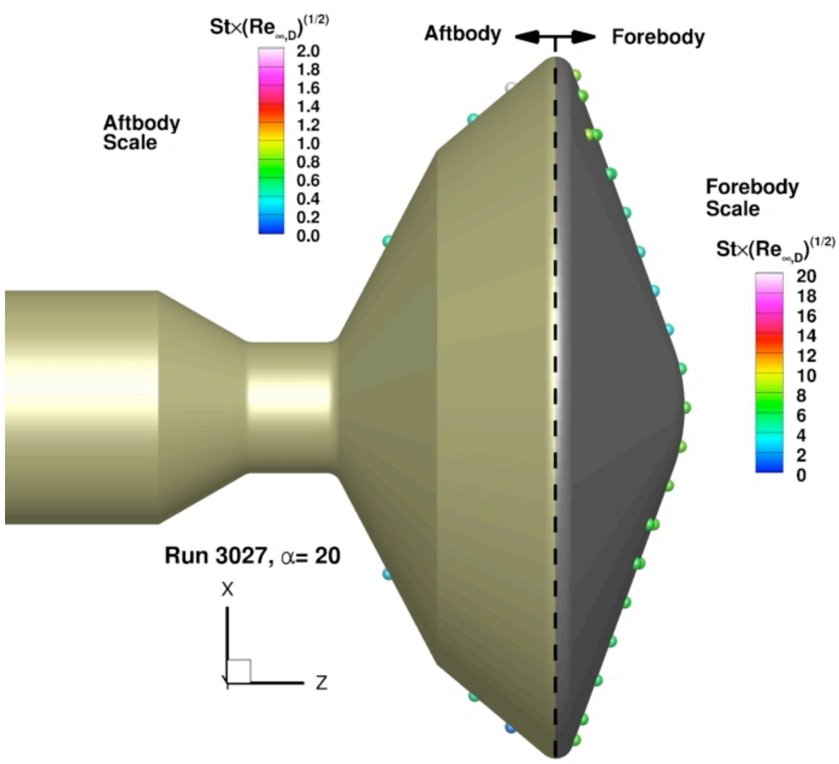


b) **Aftbody**

Figure B - 12. Run 3027 heating data, Mach 8 nozzle, $Re_{\infty} = 8.0\times10^{6}$/ft, α = 16°.

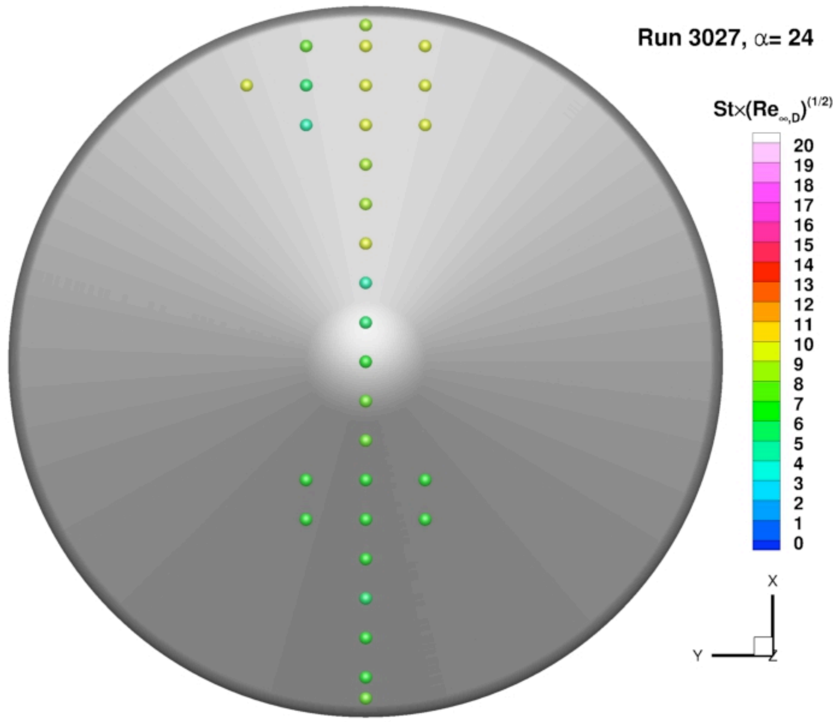


a) **Forebody**

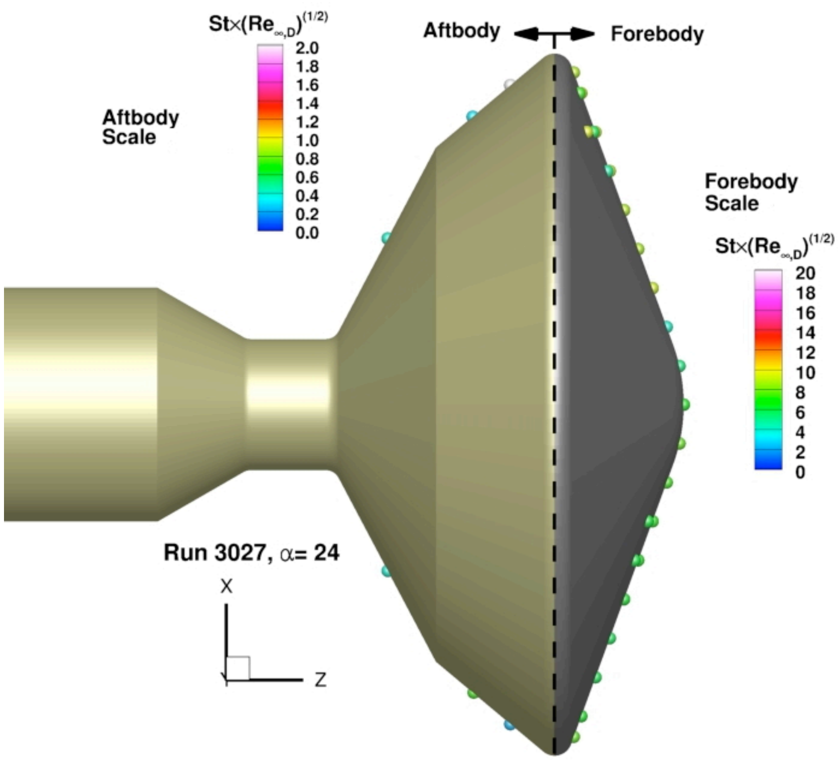


b) **Aftbody**

Figure B - 13. Run 3027 heating data, Mach 8 nozzle, $Re_\infty = 8.0 \times 10^6$/ft, α = 20°.

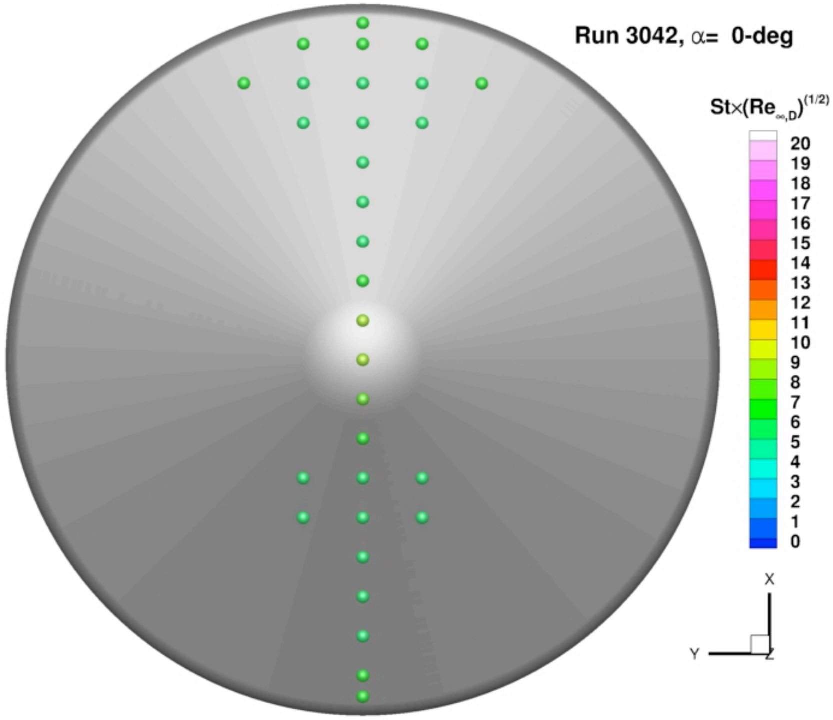


a) **Forebody**

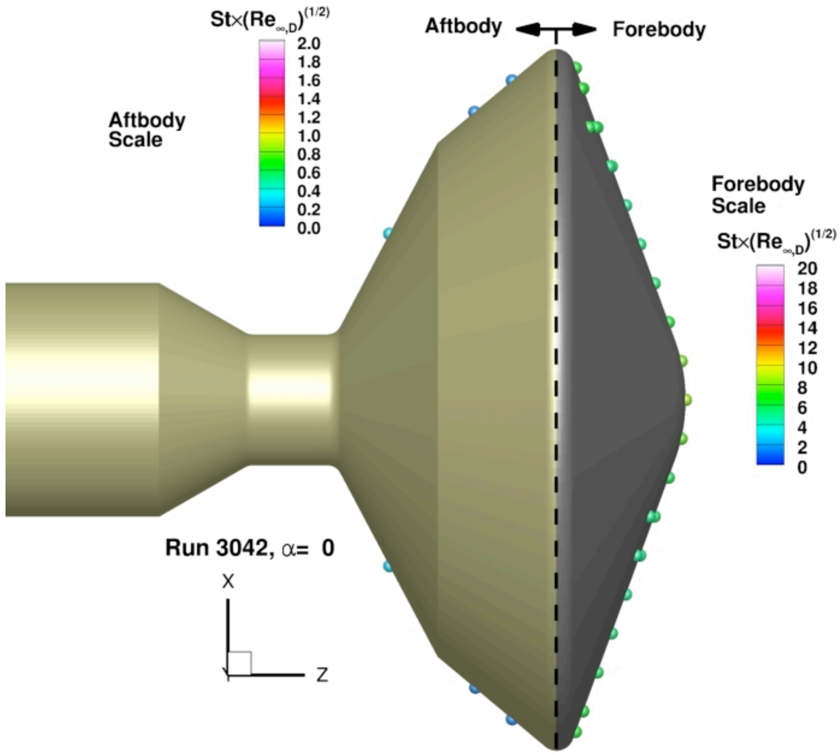


b) **Aftbody**

Figure B - 14. Run 3027 heating data, Mach 8 nozzle, $Re_\infty = 8.0\times10^6$/ft, α = 24°.

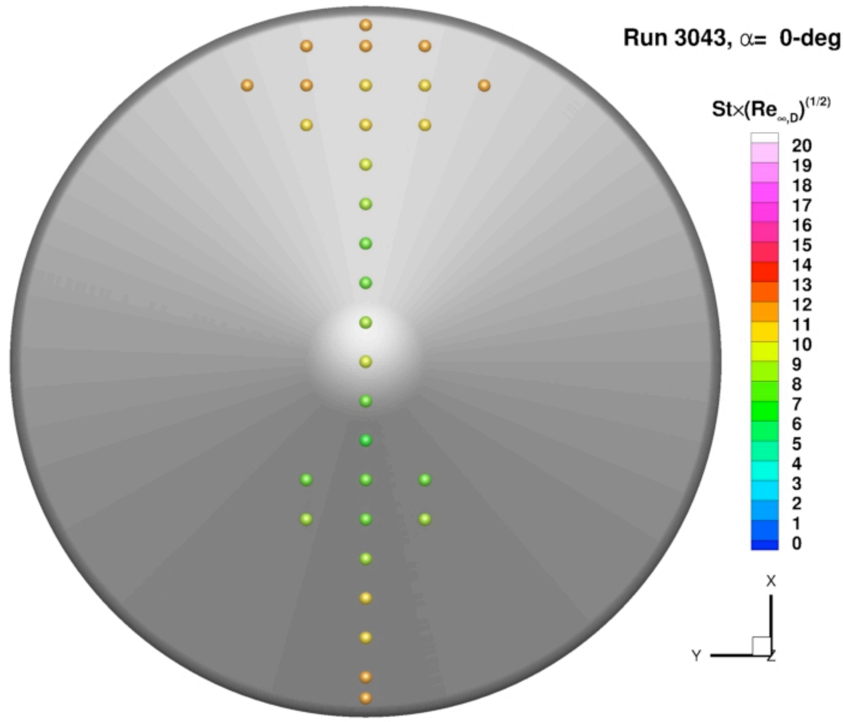


a) **Forebody**

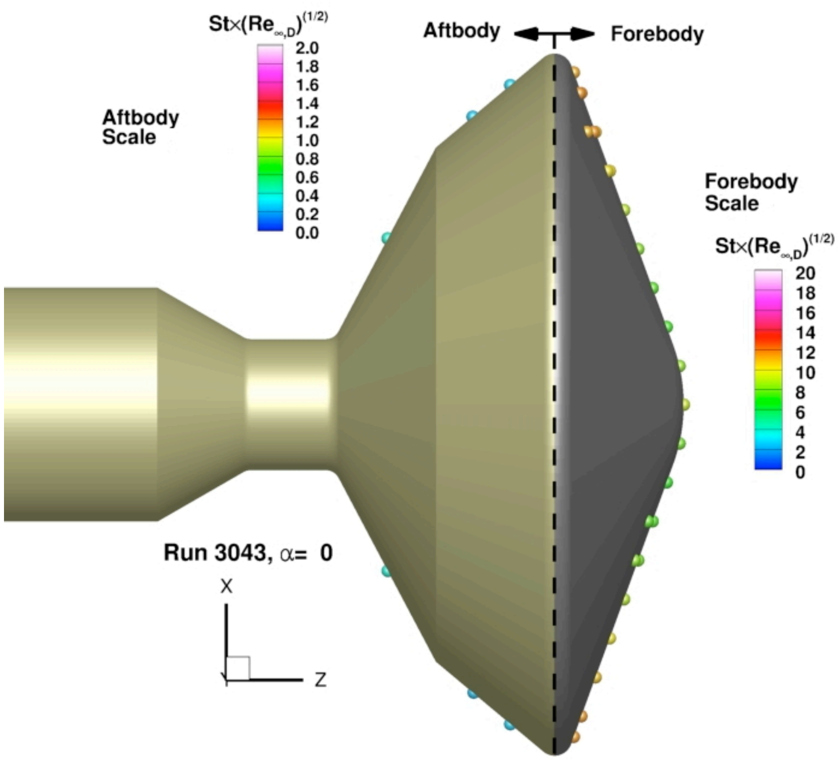


b) **Aftbody**

Figure B - 15. Run 3042 heating data, Mach 8 nozzle, $Re_\infty = 8.6\times10^6$/ft, α = 0°.

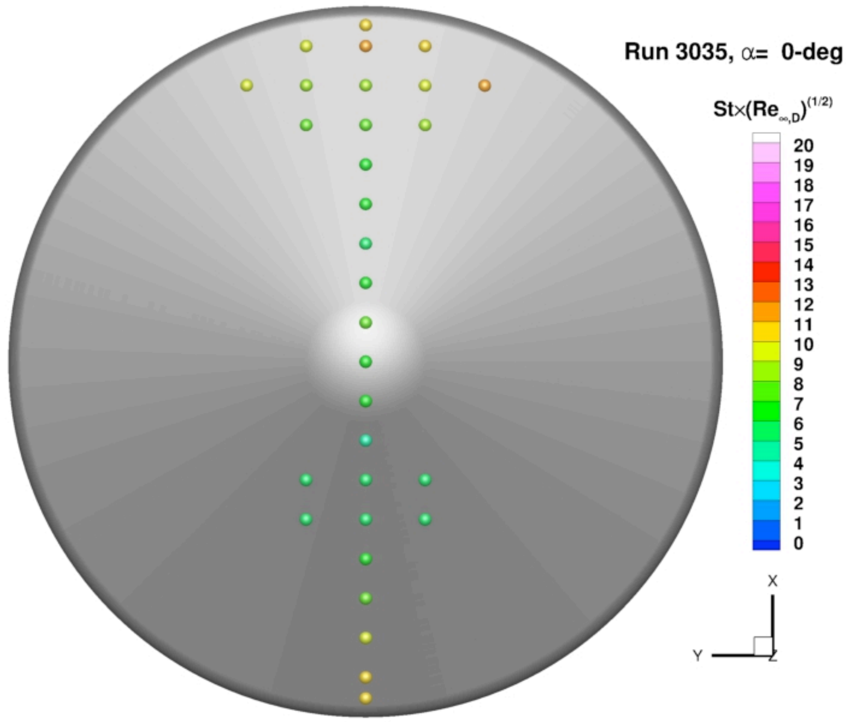


a) **Forebody**

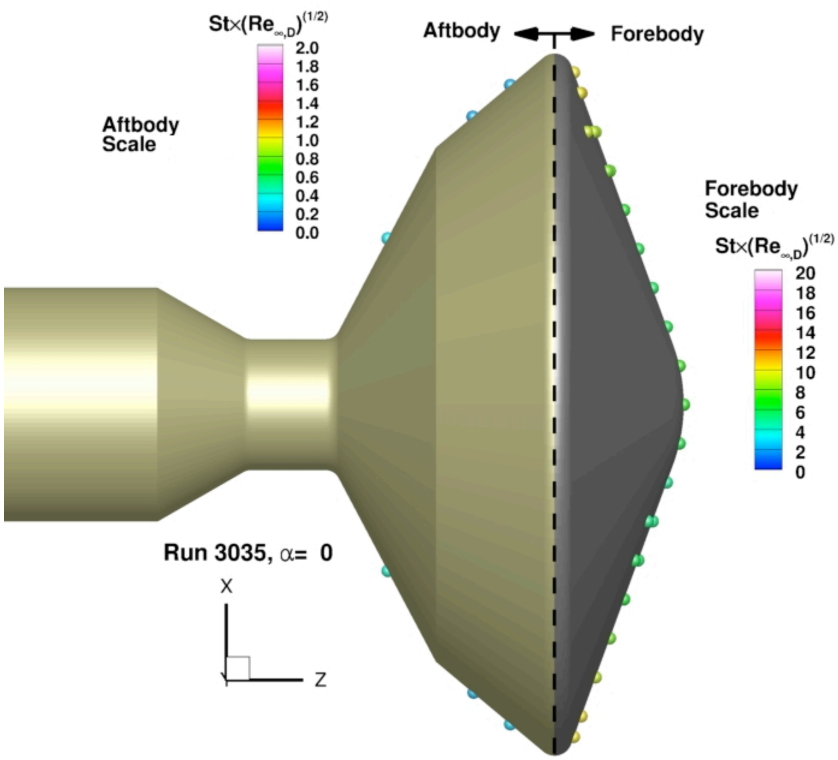


b) **Aftbody**

Figure B - 16. Run 3043 heating data, Mach 8 nozzle, $Re_\infty = 15.7\times10^6$/ft, α = 0°.

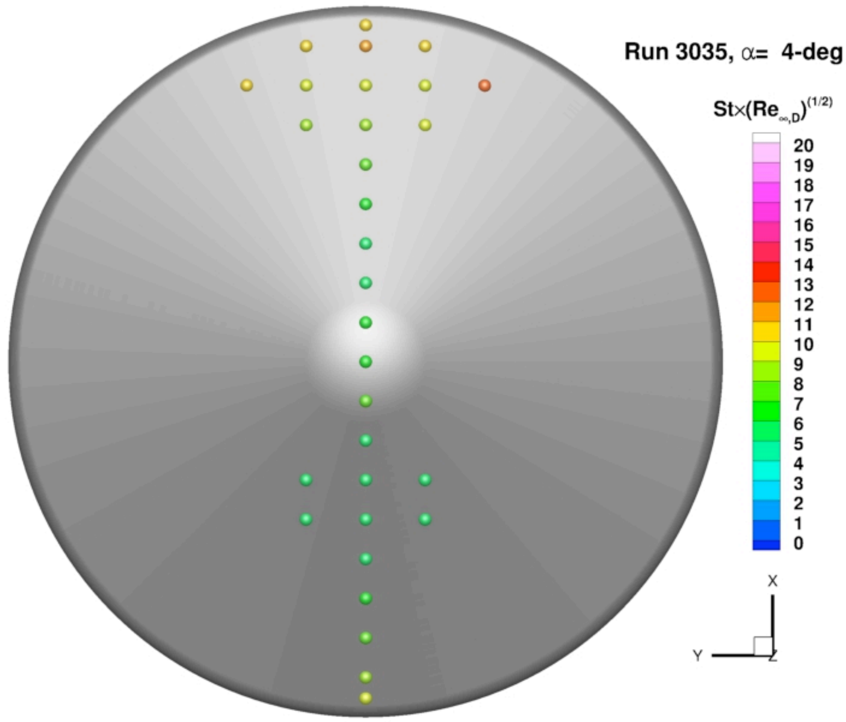


a) **Forebody**

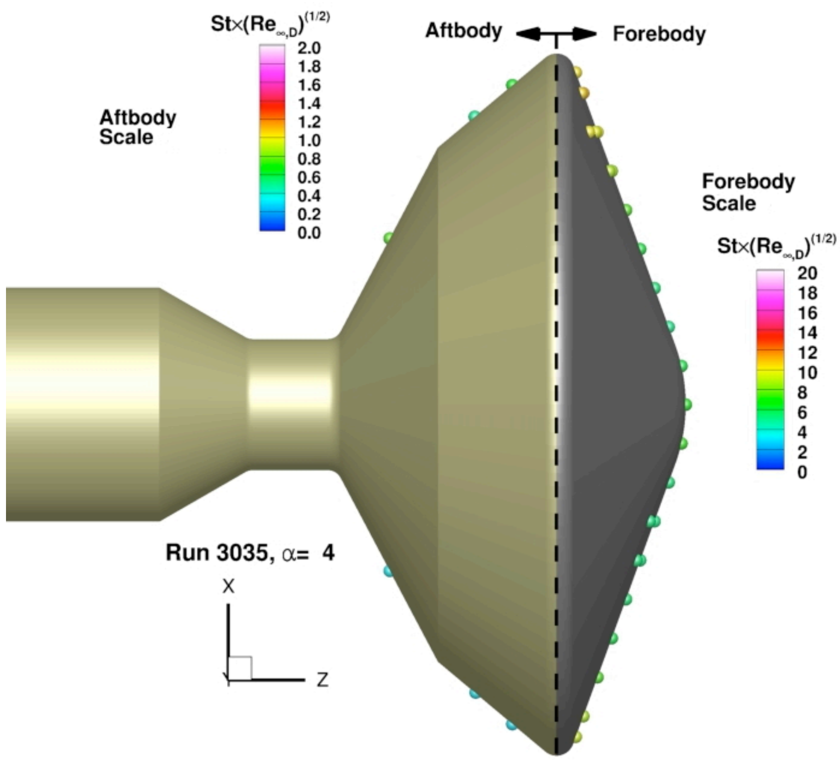


b) **Aftbody**

Figure B - 17. Run 3035 heating data, Mach 8 nozzle, $Re_{\infty} = 15.8\times10^6$/ft, $\alpha = 0°$.

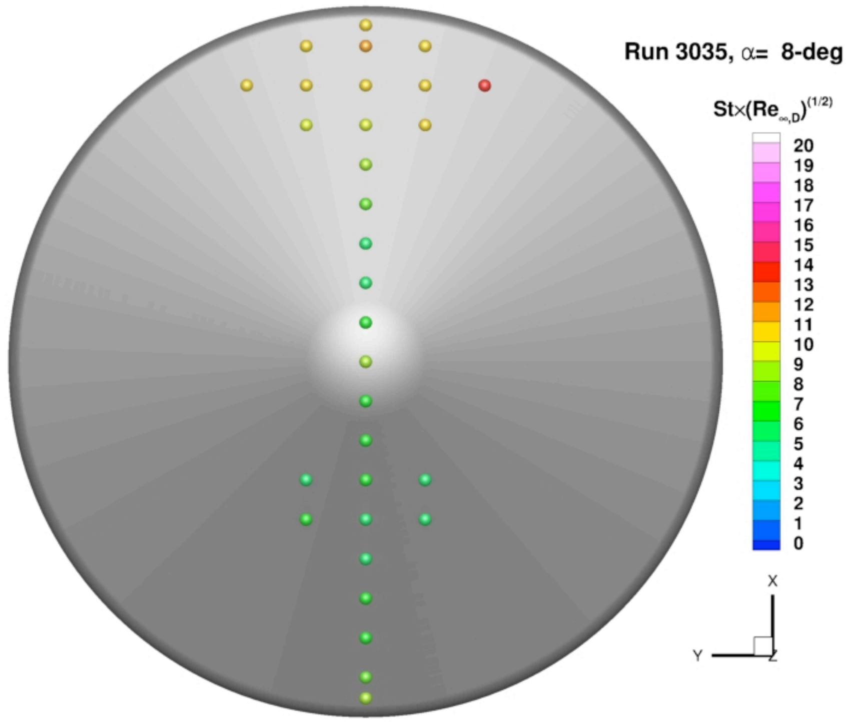


a) **Forebody**

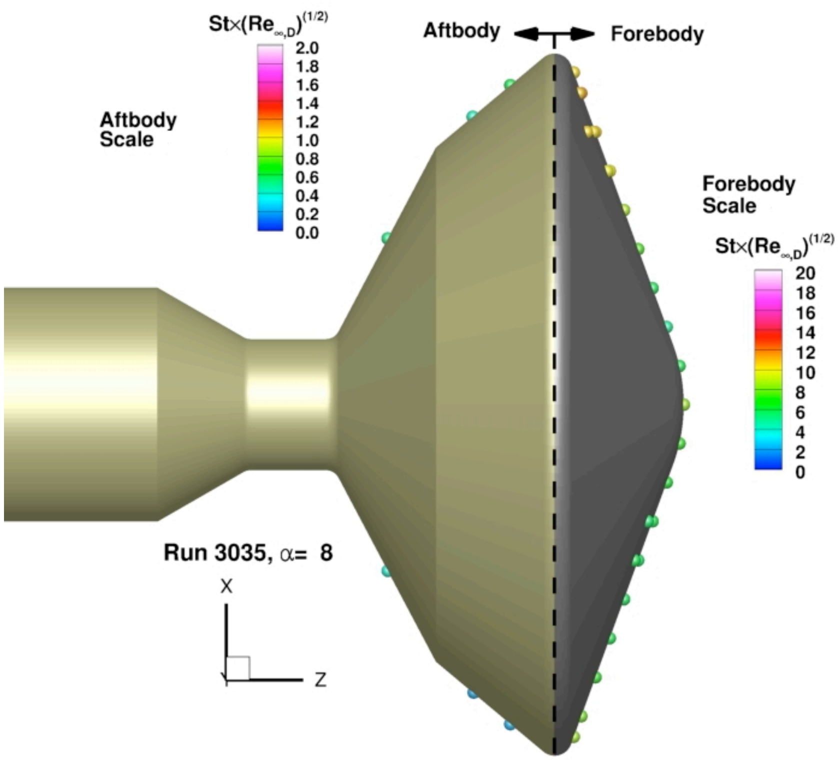


b) **Aftbody**

Figure B - 18. Run 3035 heating data, Mach 8 nozzle, $Re_\infty = 15.8 \times 10^6$/ft, $\alpha = 4°$.

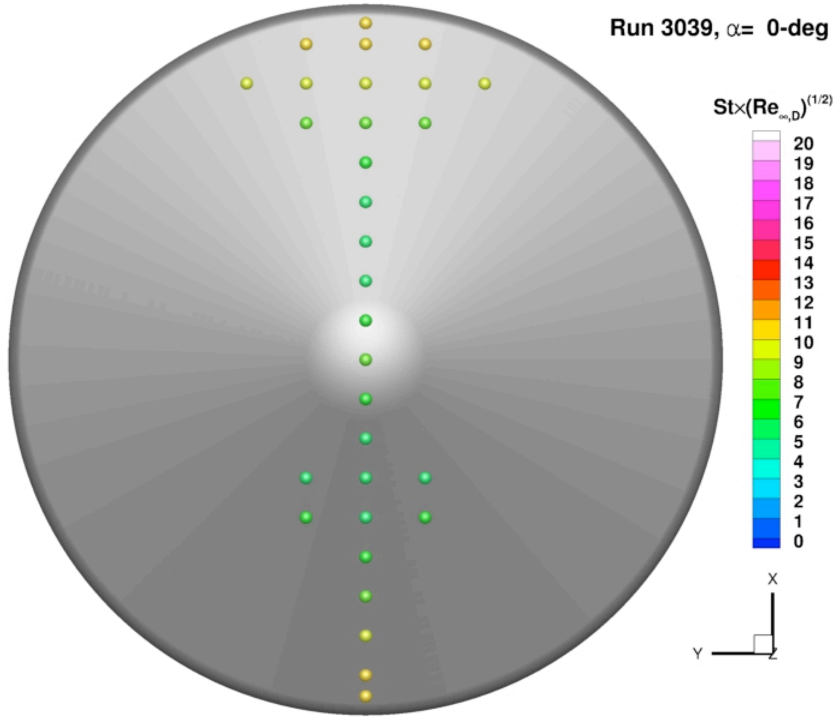


a) **Forebody**

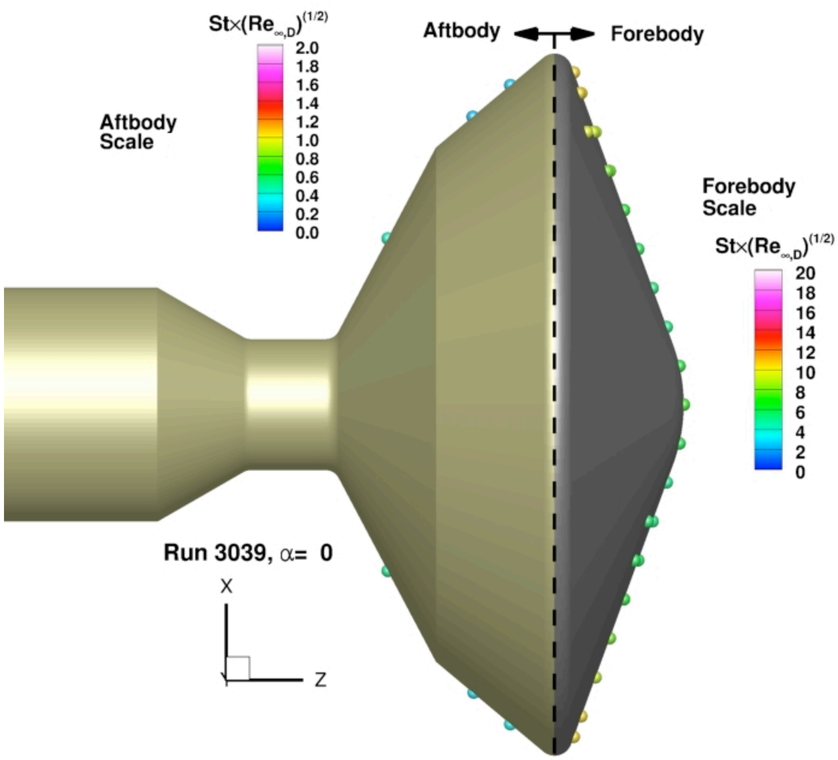


b) **Aftbody**

Figure B - 19. Run 3035 heating data, Mach 8 nozzle, $Re_\infty = 15.8 \times 10^6$/ft, α = 8°.

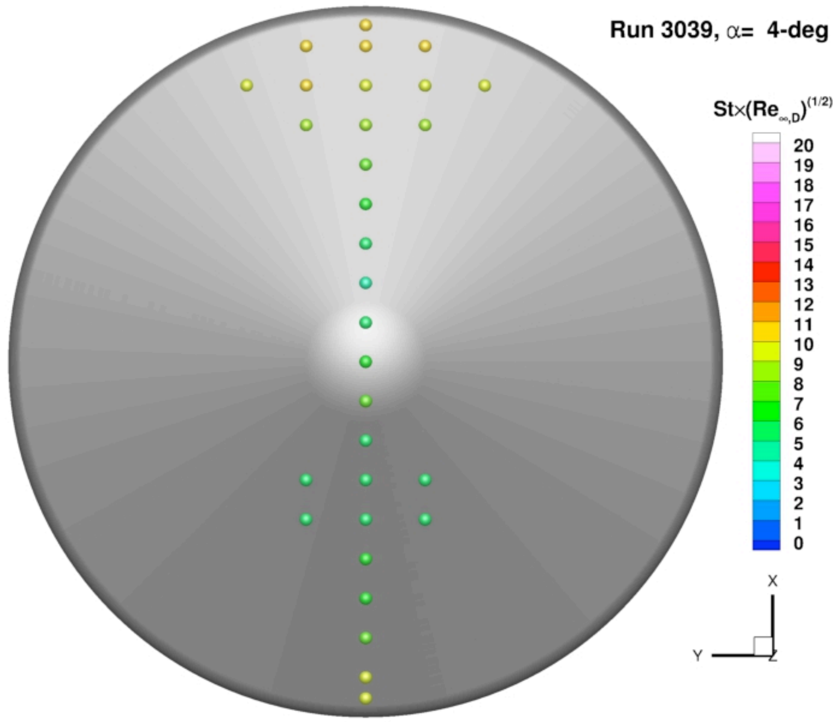


a) **Forebody**

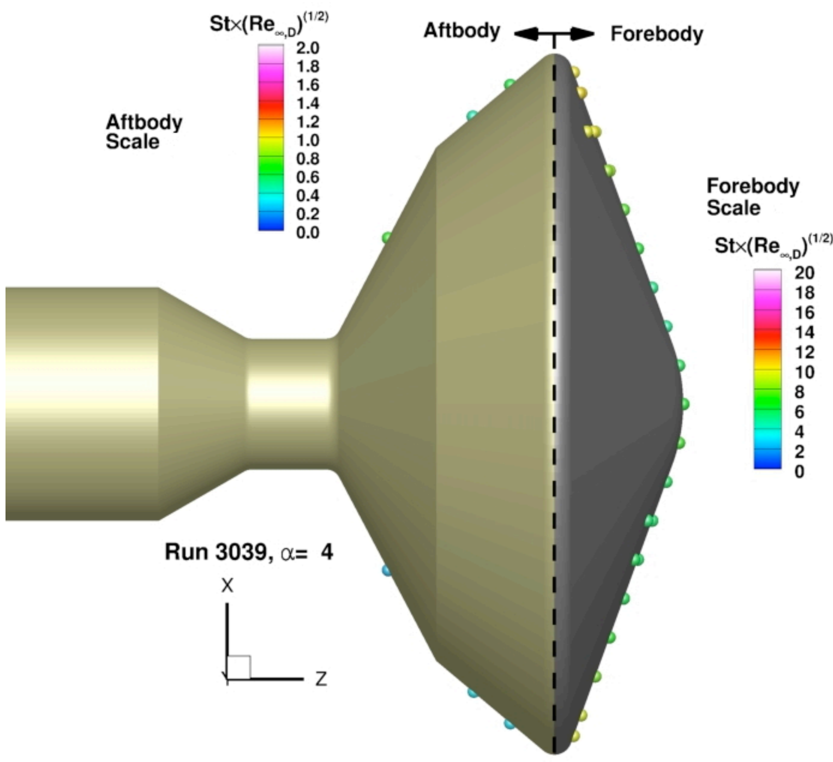


b) **Aftbody**

Figure B - 20. Run 3039 heating data, Mach 8 nozzle, $Re_\infty = 15.8 \times 10^6$/ft, $\alpha = 0°$.

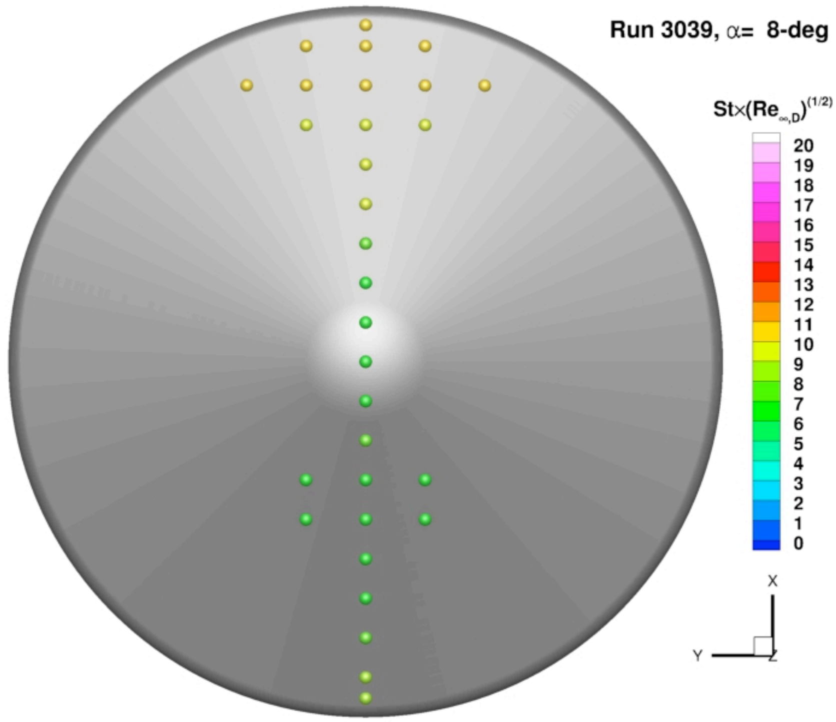


a) **Forebody**

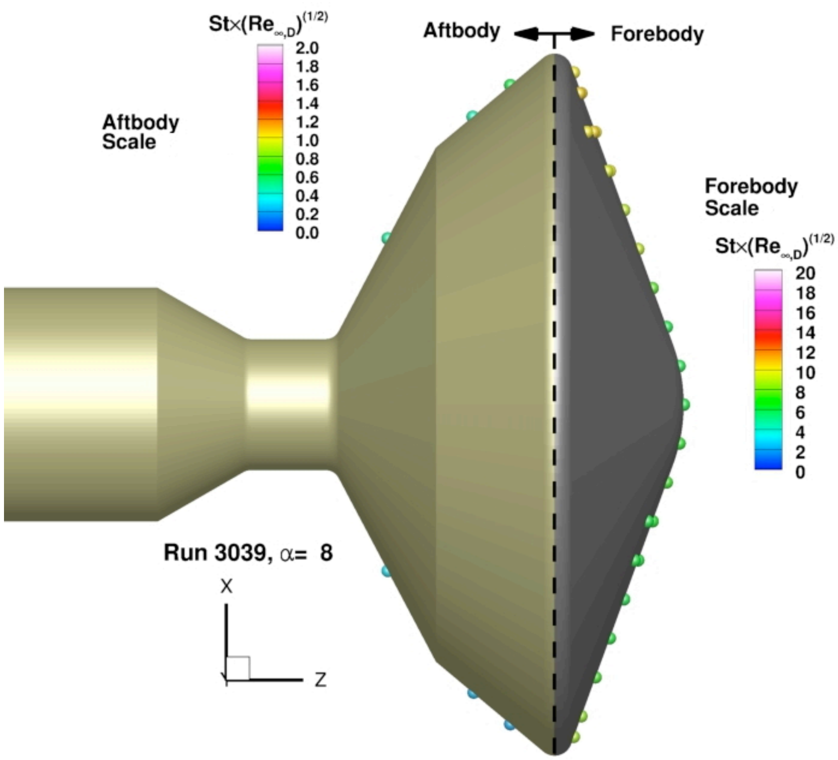


b) **Aftbody**

Figure B - 21. Run 3039 heating data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 4°.

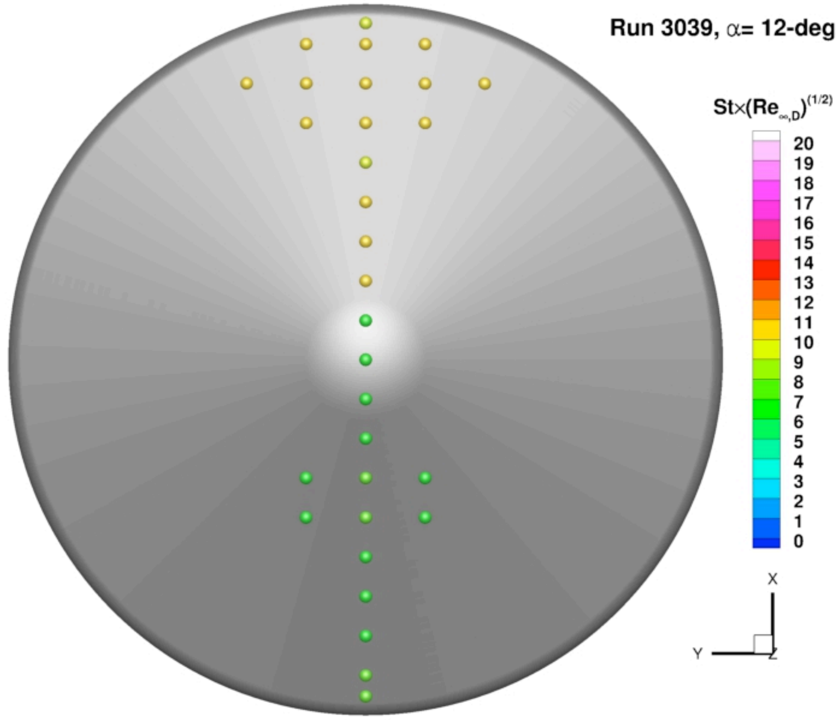


a) **Forebody**

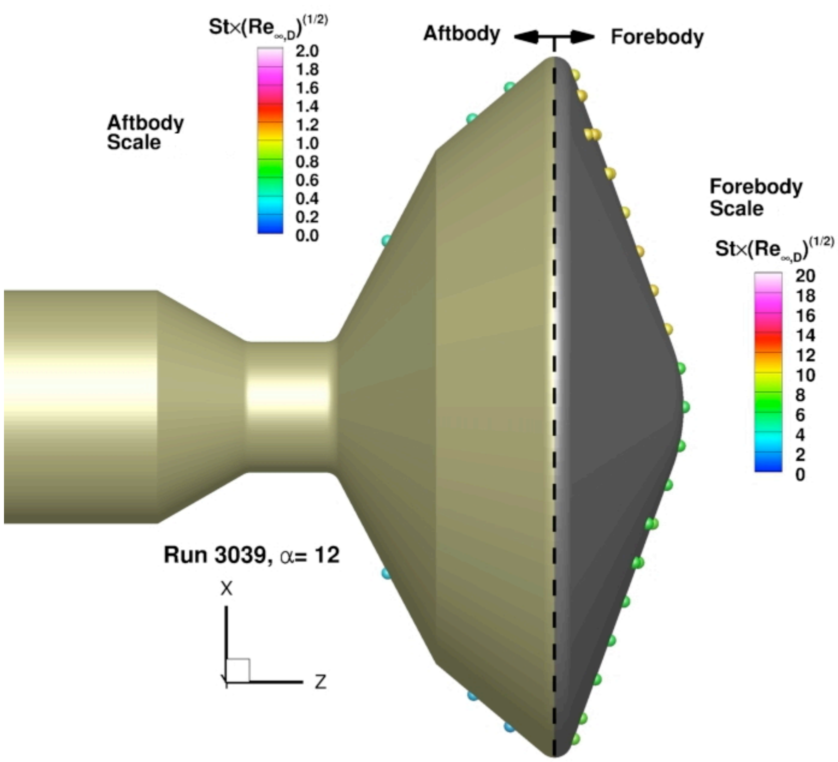


b) **Aftbody**

Figure B - 22. Run 3039 heating data, Mach 8 nozzle, $Re_\infty = 15.8 \times 10^6$/ft, $\alpha = 8°$.

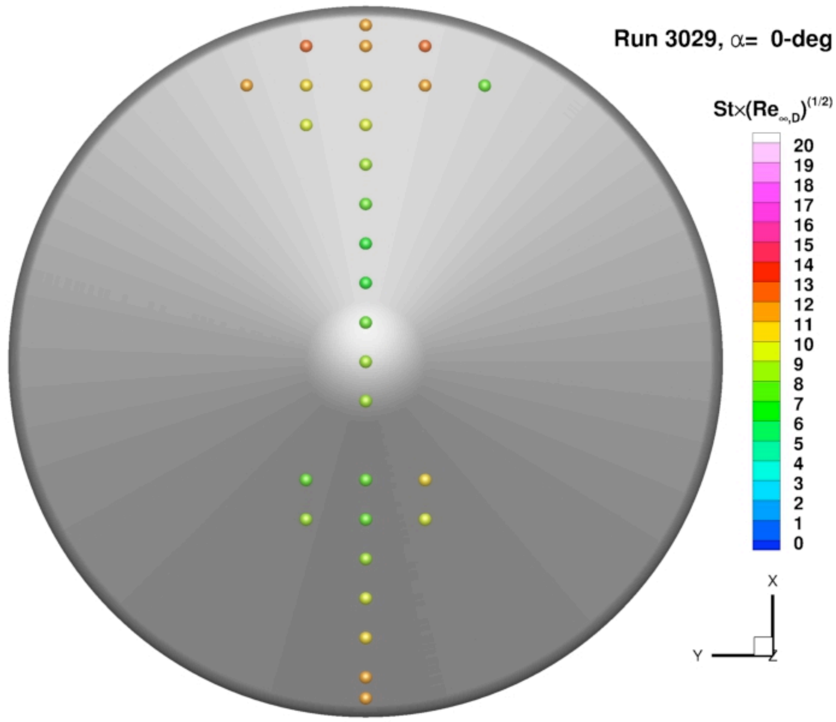


a) **Forebody**

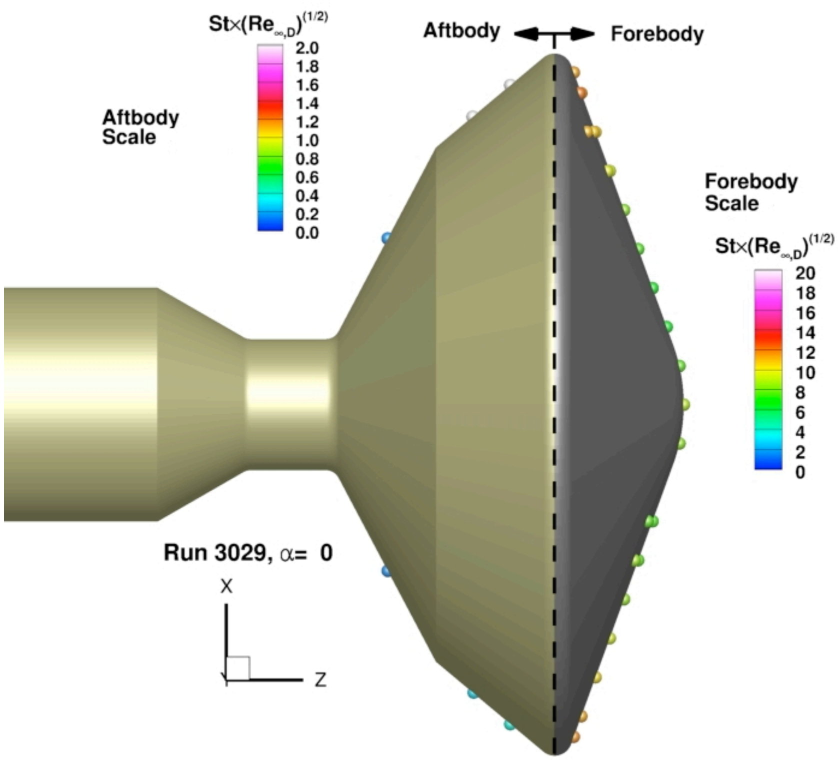


b) **Aftbody**

Figure B - 23. Run 3039 heating data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 12°.

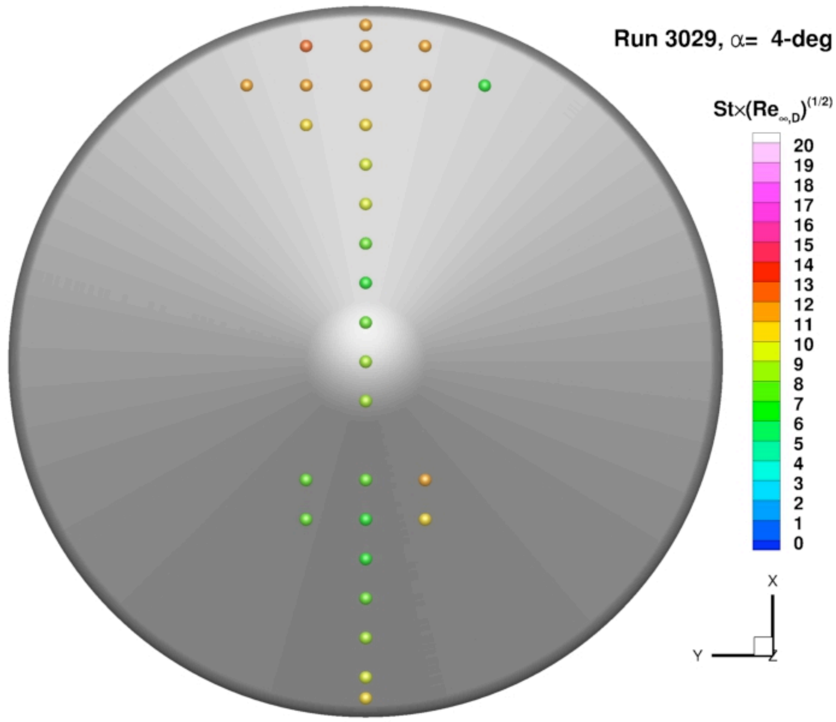


a) **Forebody**

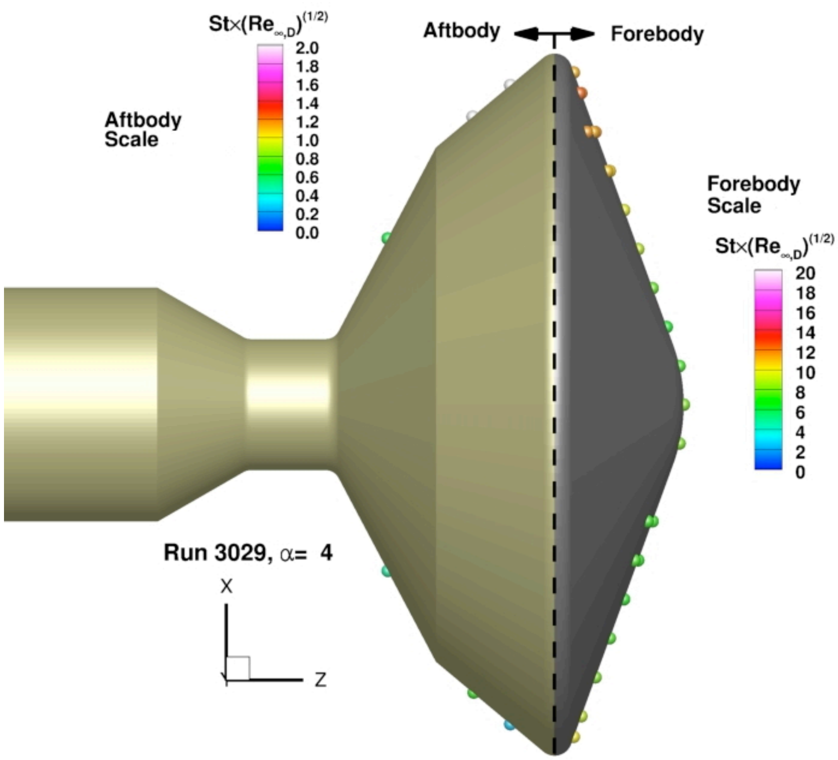


b) **Aftbody**

Figure B - 24. Run 3029 heating data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 0°.

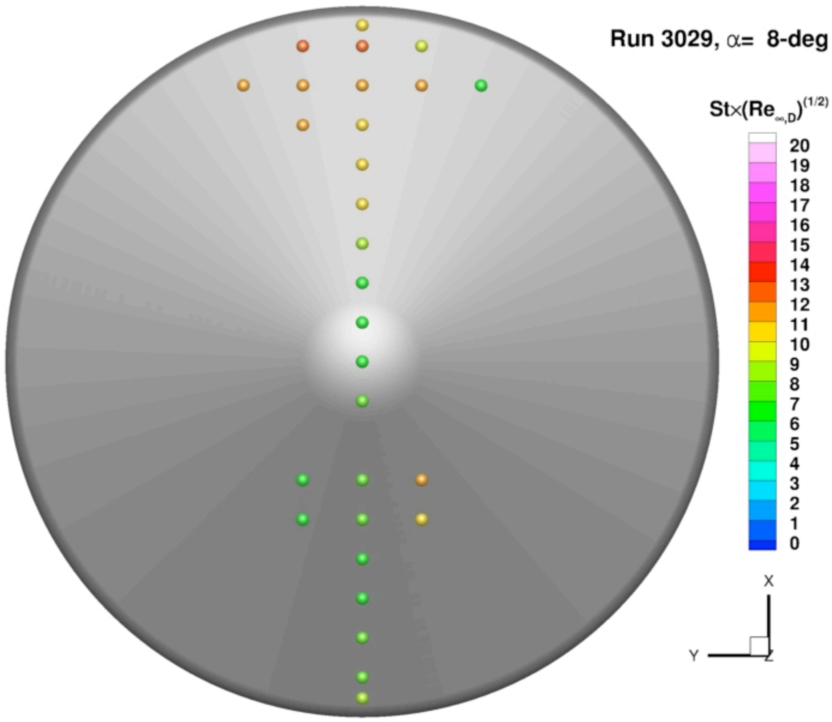


a) **Forebody**

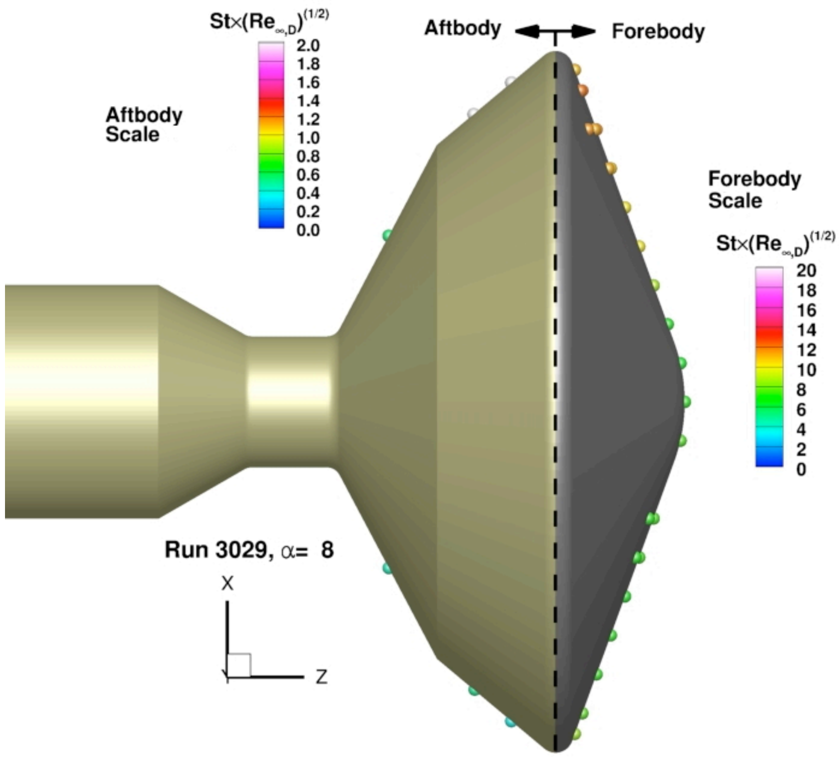


b) **Aftbody**

Figure B - 25. Run 3029 heating data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 4°.

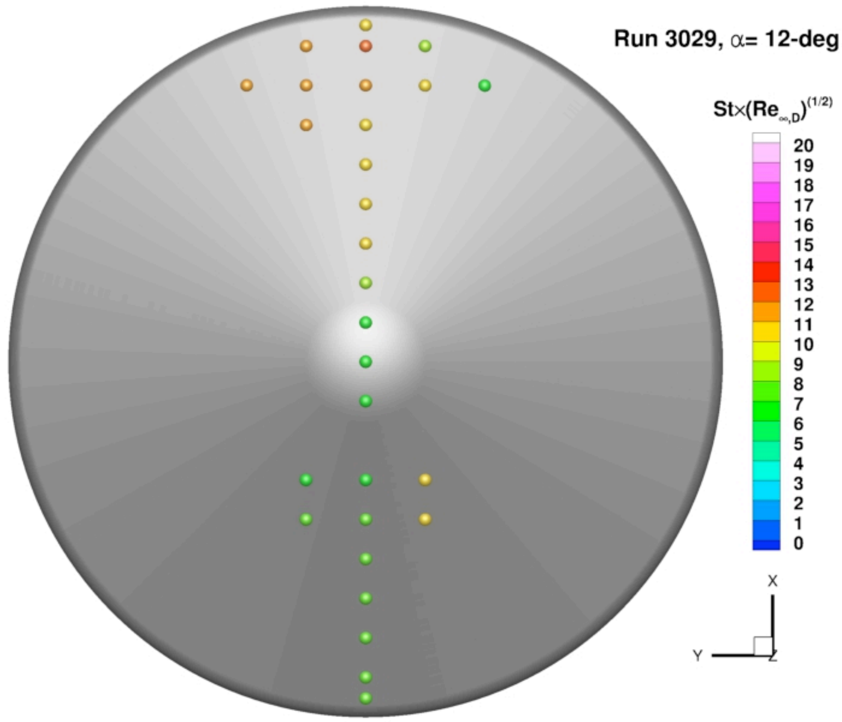


a) **Forebody**

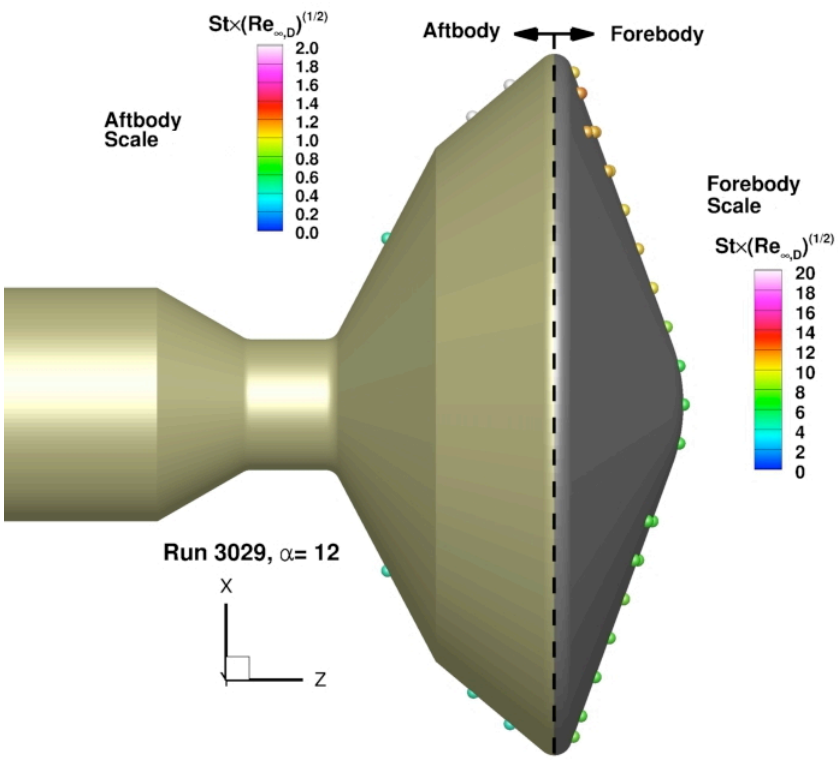


b) **Aftbody**

Figure B - 26. Run 3029 heating data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, $\alpha = 8°$.

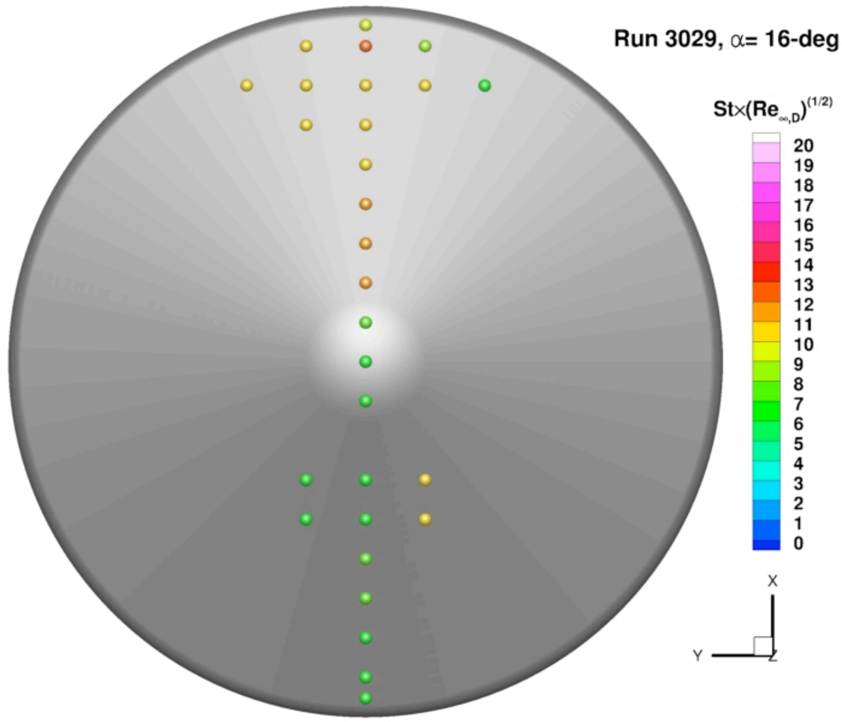


a) **Forebody**

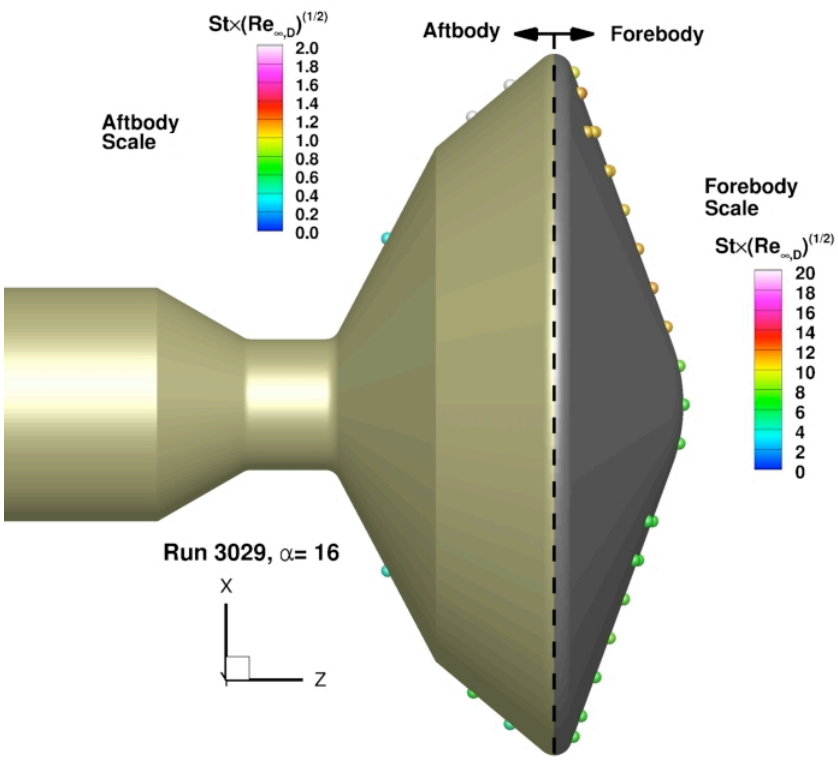


b) **Aftbody**

Figure B - 27. Run 3029 heating data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 12°.

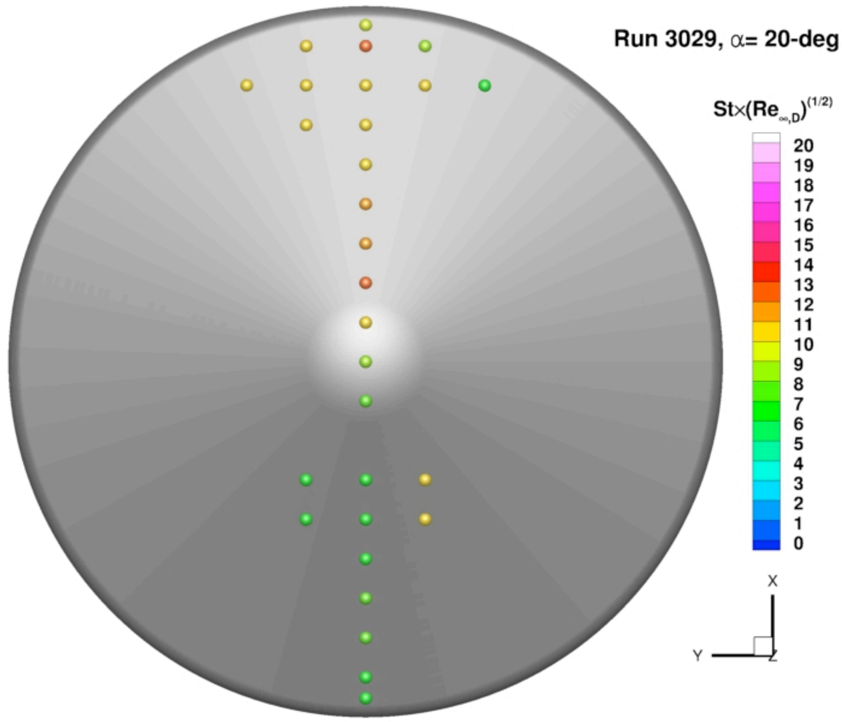


a) **Forebody**

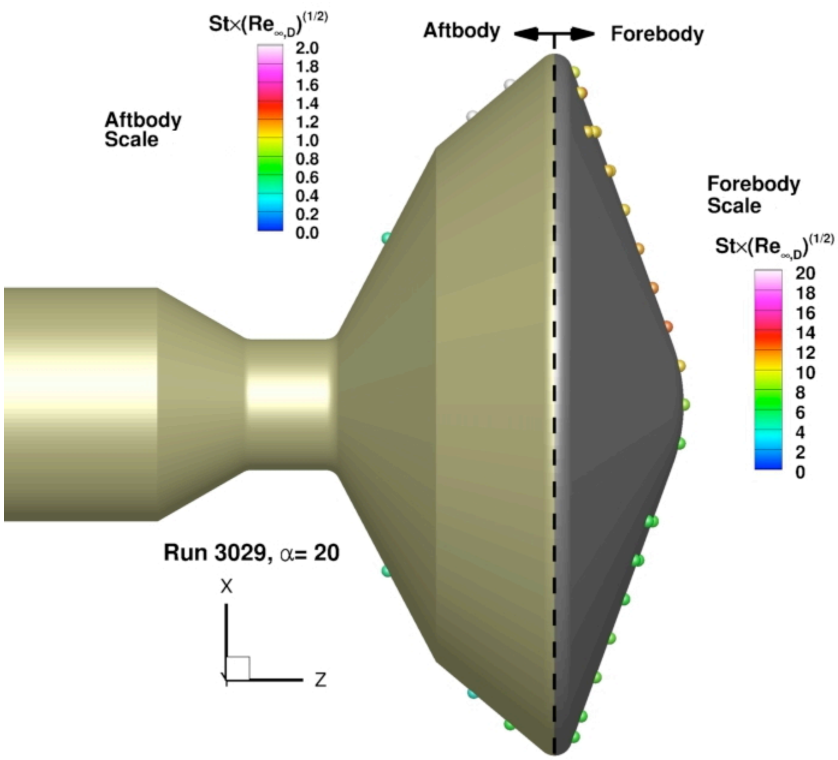


b) **Aftbody**

Figure B - 28. Run 3029 heating data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 16°.

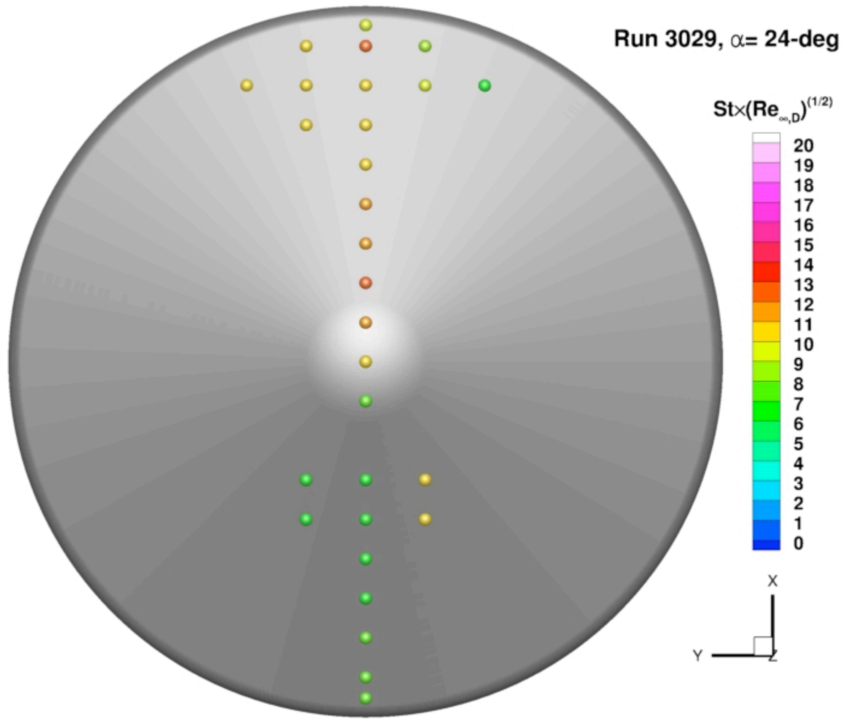


a) **Forebody**

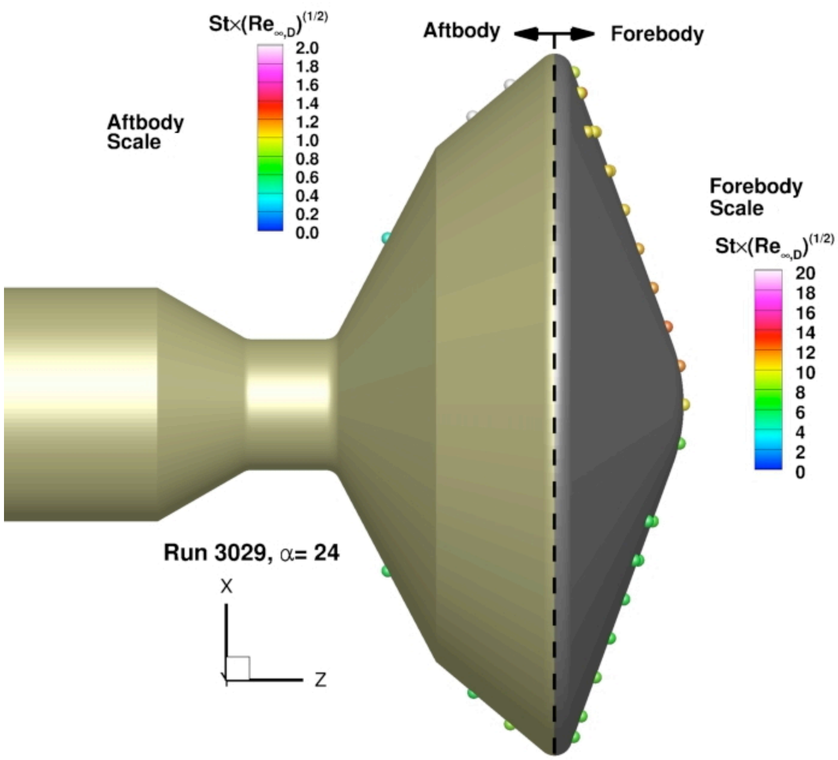


b) **Aftbody**

Figure B - 29. Run 3029 heating data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 20°.

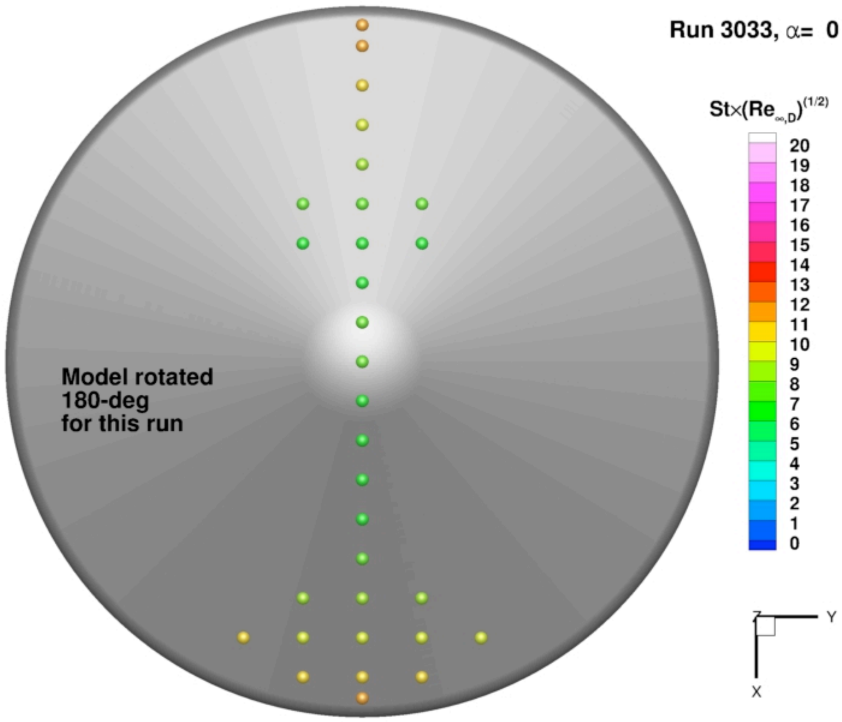


a) **Forebody**

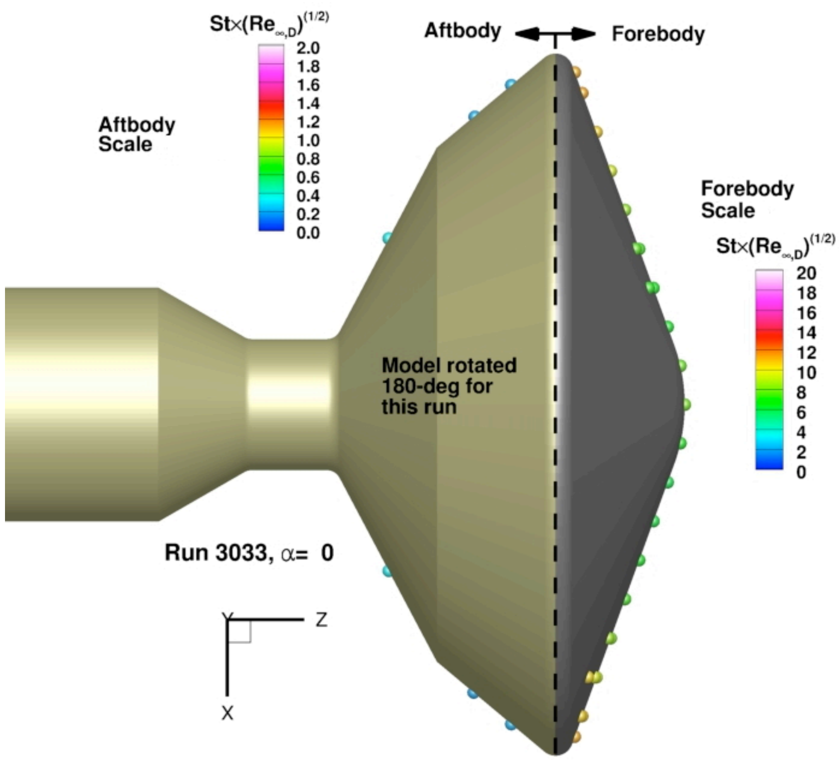


b) **Aftbody**

Figure B - 30. Run 3029 heating data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 24°.

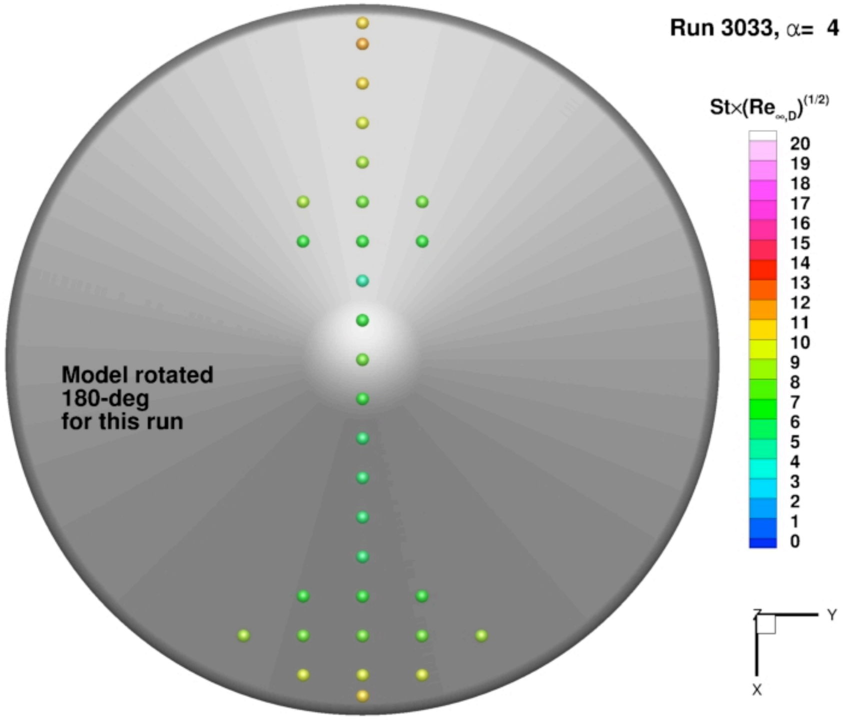


a) **Forebody**

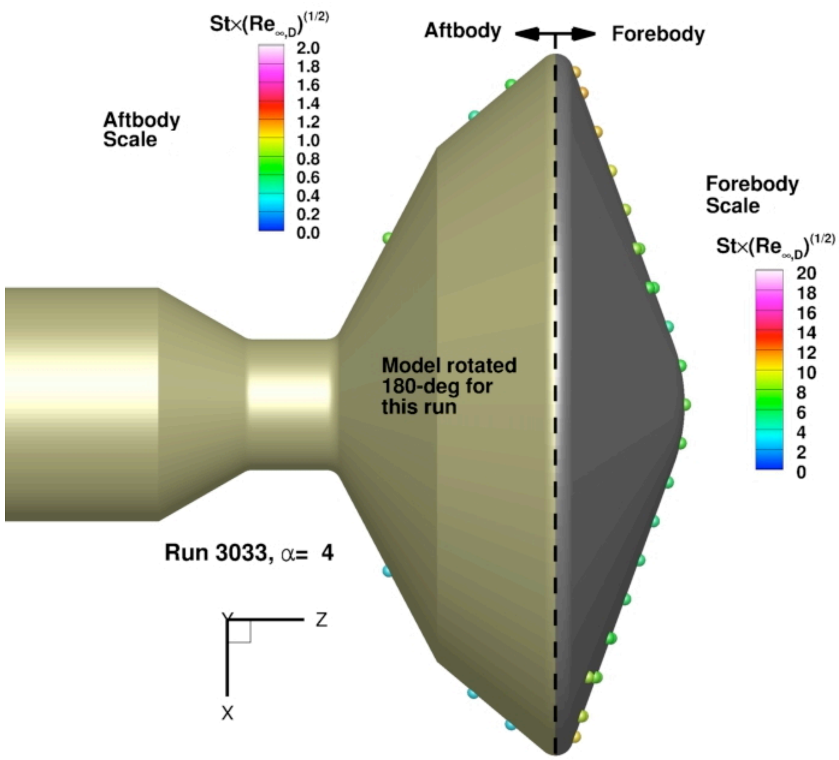


b) **Aftbody**

Figure B - 31. Run 3033 heating data, Mach 8 nozzle, $Re_\infty = 15.9\times10^6$/ft, α = 0°.

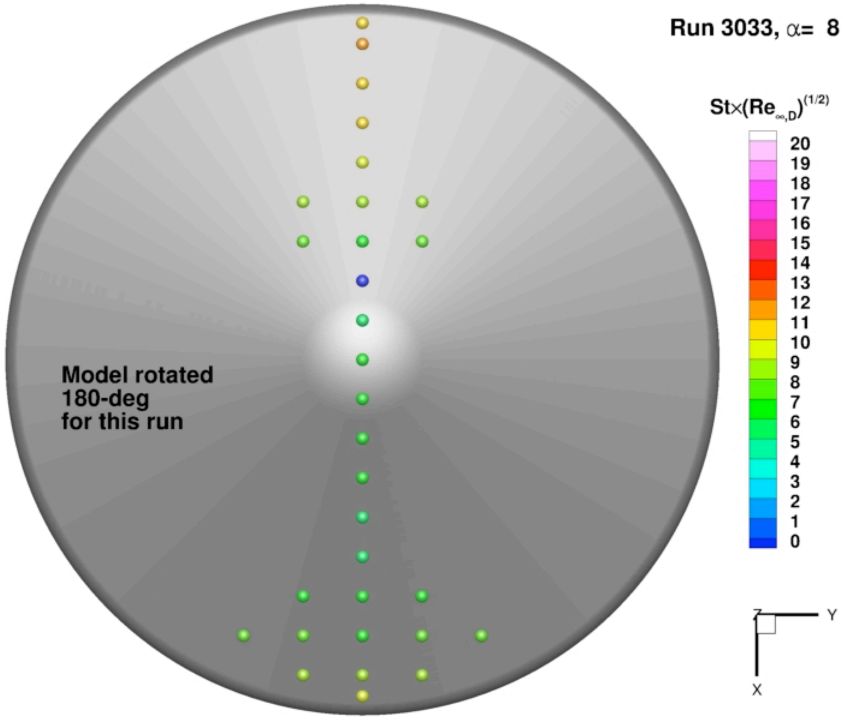


a) **Forebody**

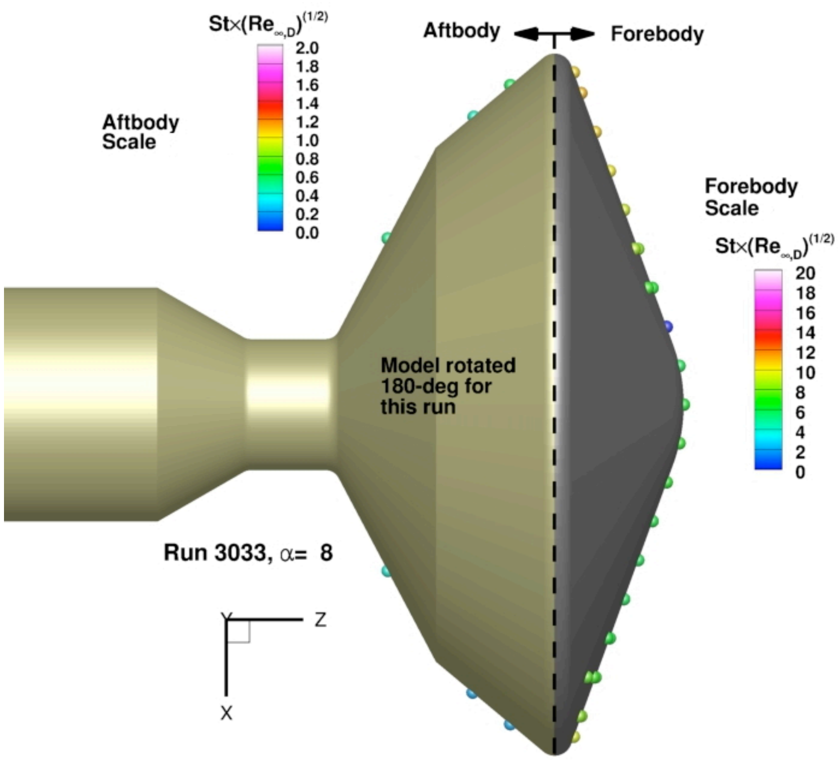


b) **Aftbody**

Figure B - 32. Run 3033 heating data, Mach 8 nozzle, $Re_{\infty} = 15.9\times10^{6}$/ft, $\alpha = 4°$.

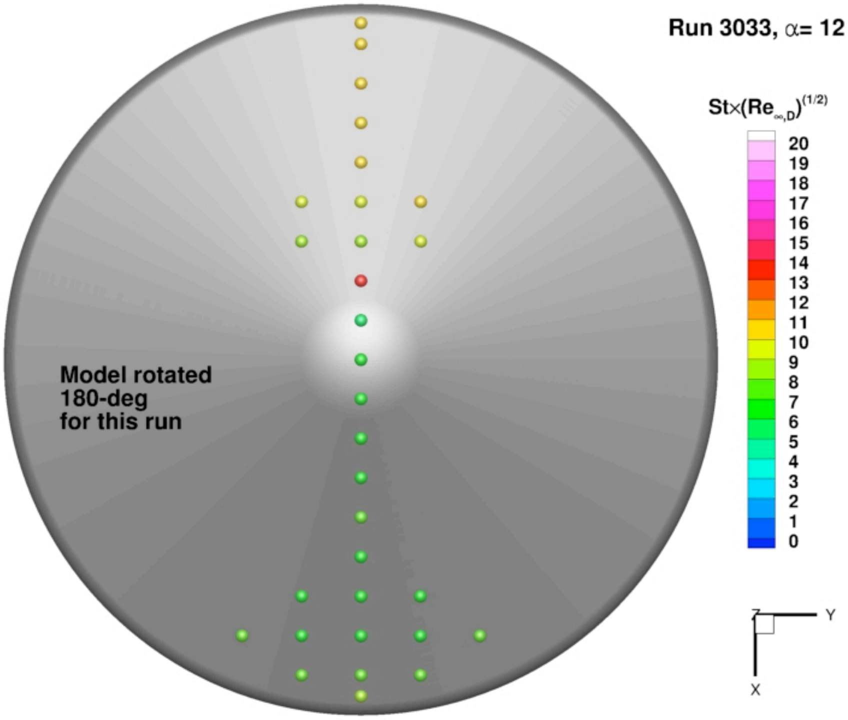


a) **Forebody**

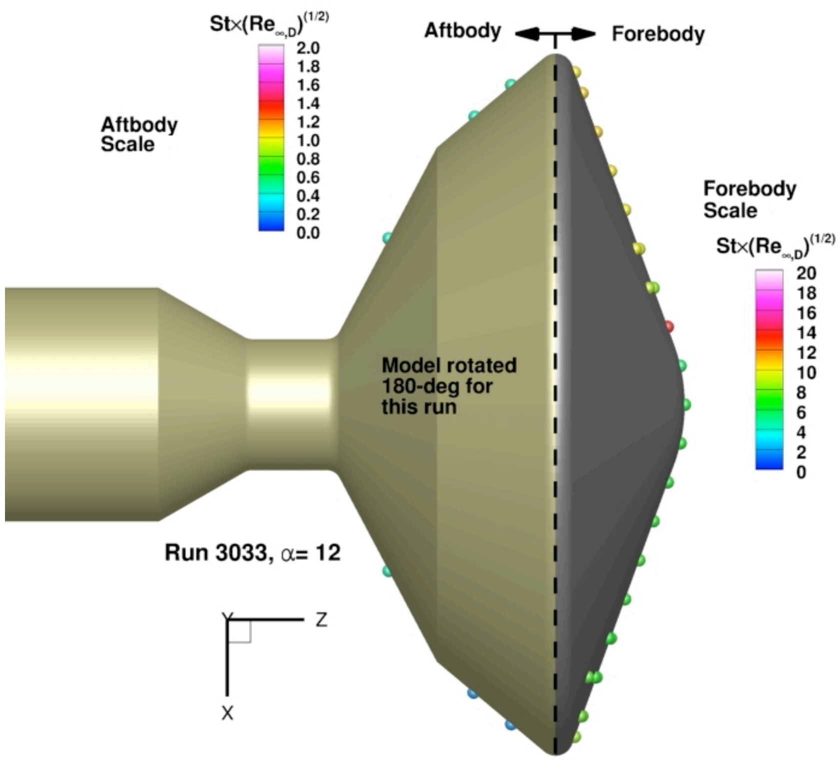


b) **Aftbody**

Figure B - 33. Run 3033 heating data, Mach 8 nozzle, $Re_\infty = 15.9\times10^6$/ft, $\alpha = 8°$.

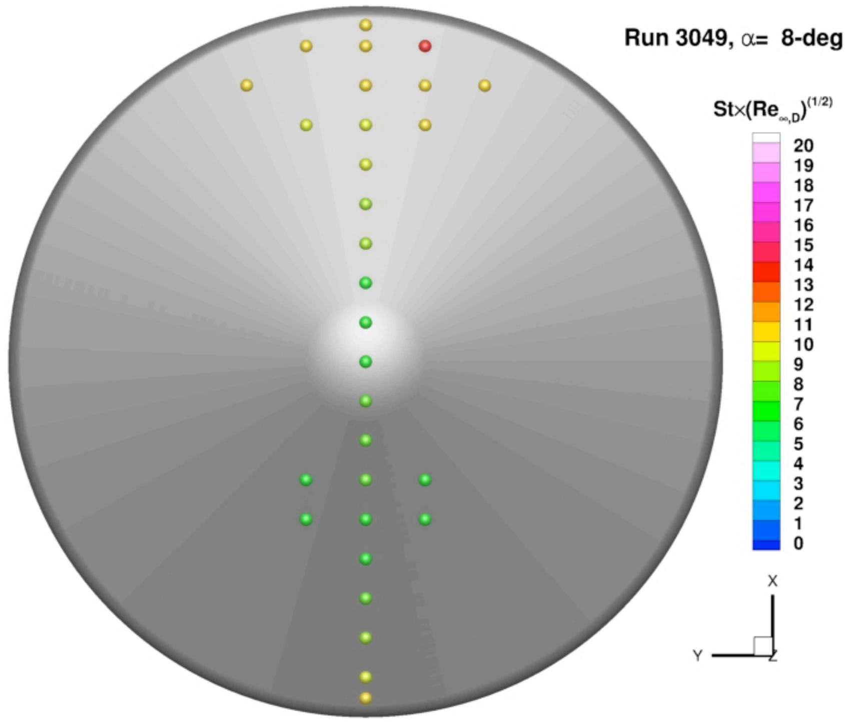


a) **Forebody**

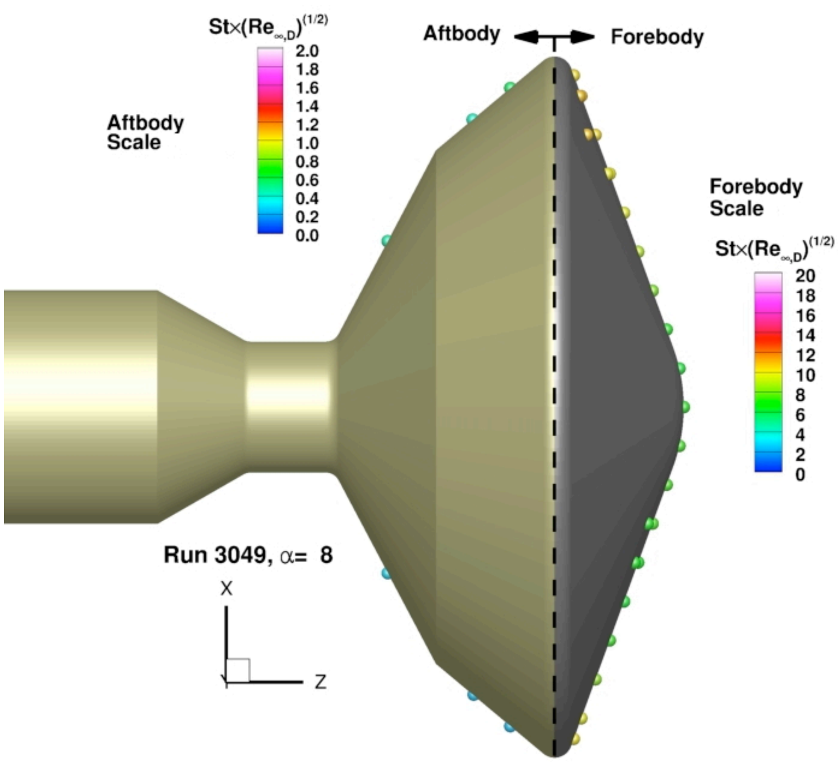


b) **Aftbody**

Figure B - 34. Run 3033 heating data, Mach 8 nozzle, $Re_\infty = 15.9\times10^6$/ft, α = 12°.

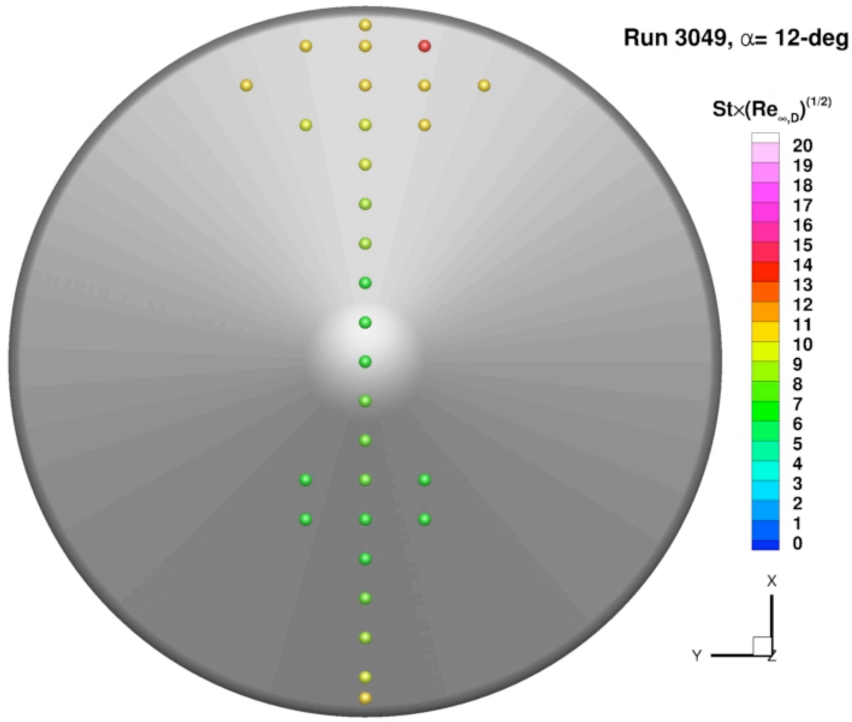


a) **Forebody**

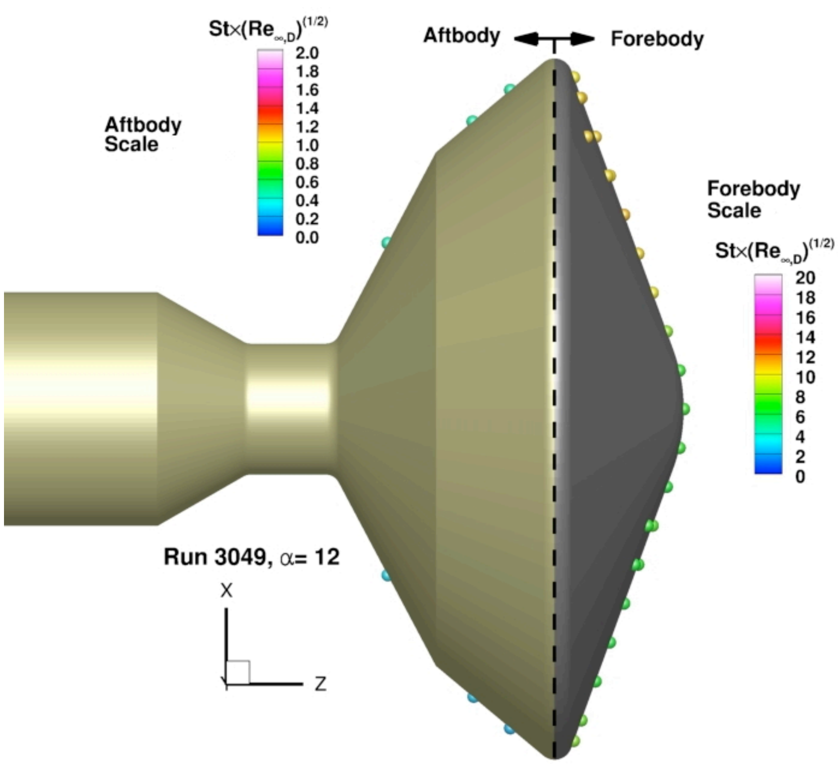


b) **Aftbody**

Figure B - 35. Run 3049 heating data, Mach 8 nozzle, $Re_{\infty} = 16.0 \times 10^6$/ft, α = 8°.

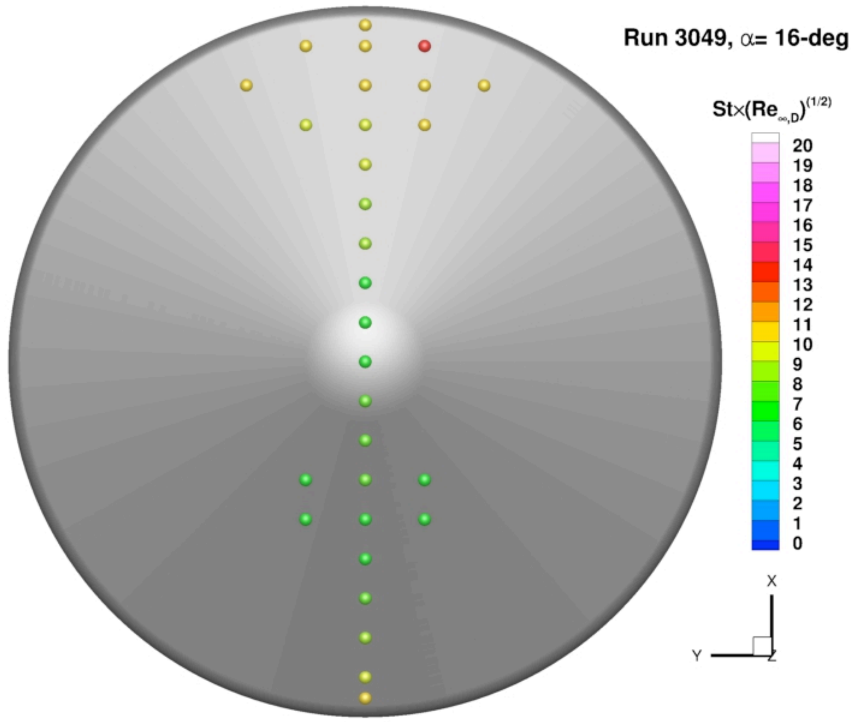


a) **Forebody**

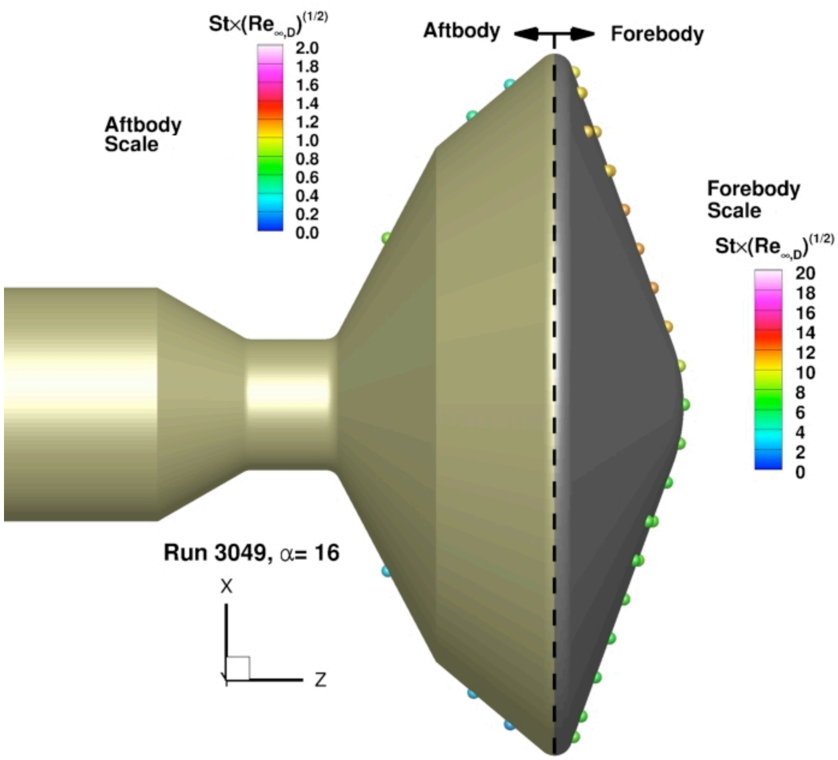


b) **Aftbody**

Figure B - 36. Run 3049 heating data, Mach 8 nozzle, Re$_\infty$ = 16.0×10^6/ft, α = 12°.

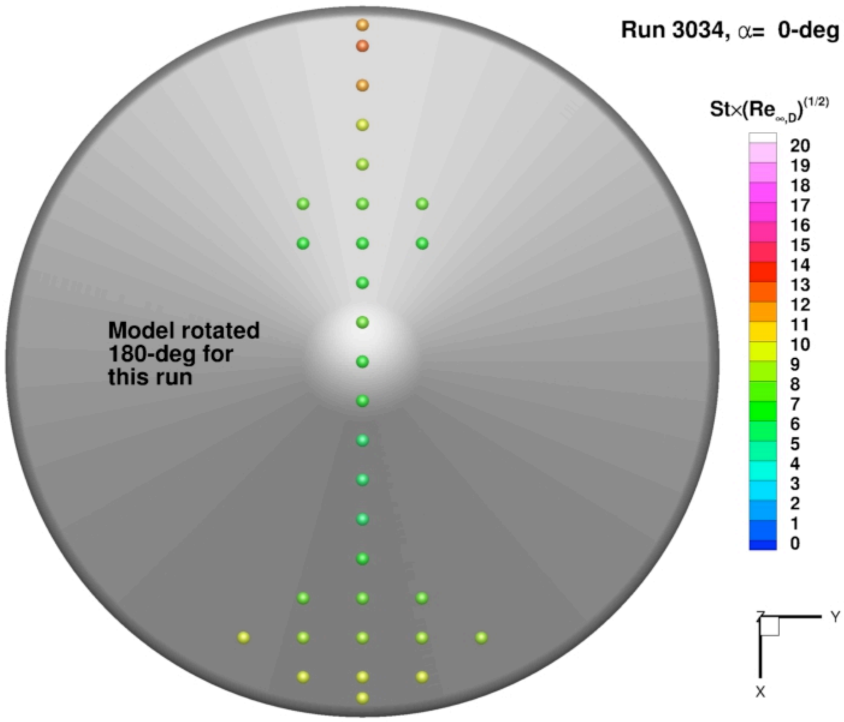


a) **Forebody**

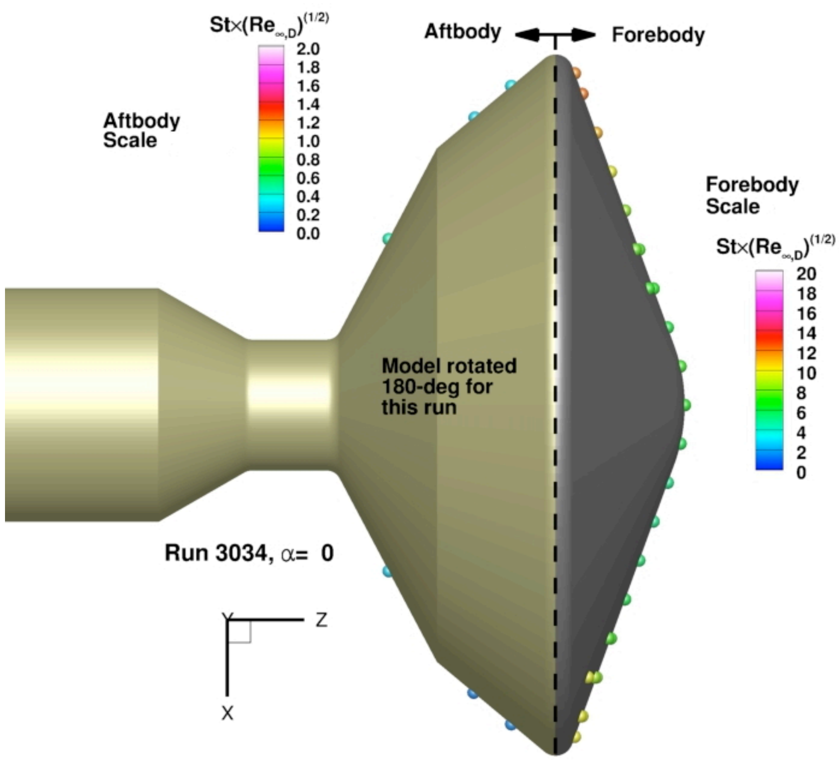


b) **Aftbody**

Figure B - 37. Run 3049 heating data, Mach 8 nozzle, $Re_\infty = 16.0\times10^6$/ft, α = 16°.

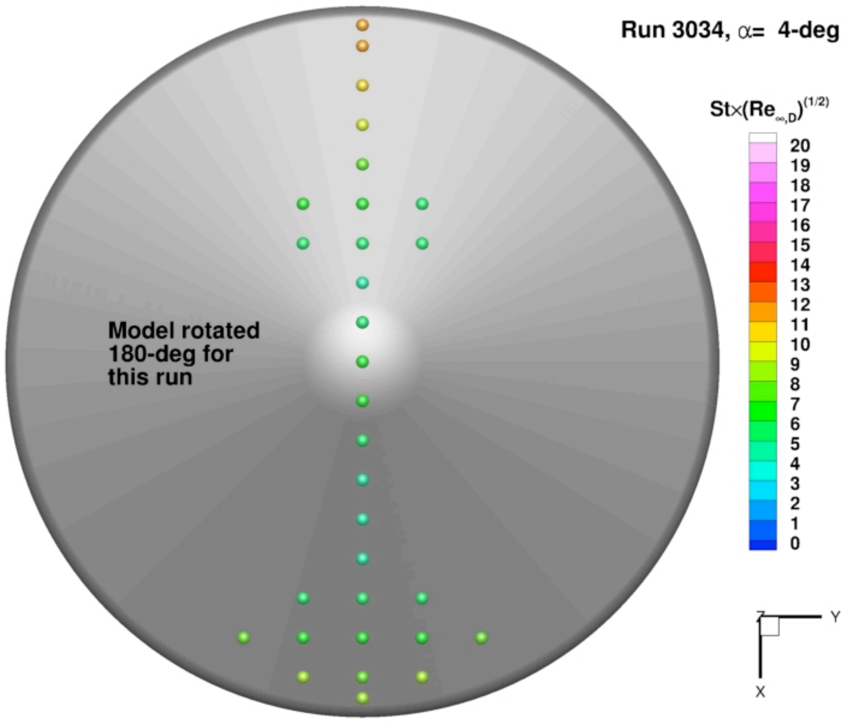


a) **Forebody**

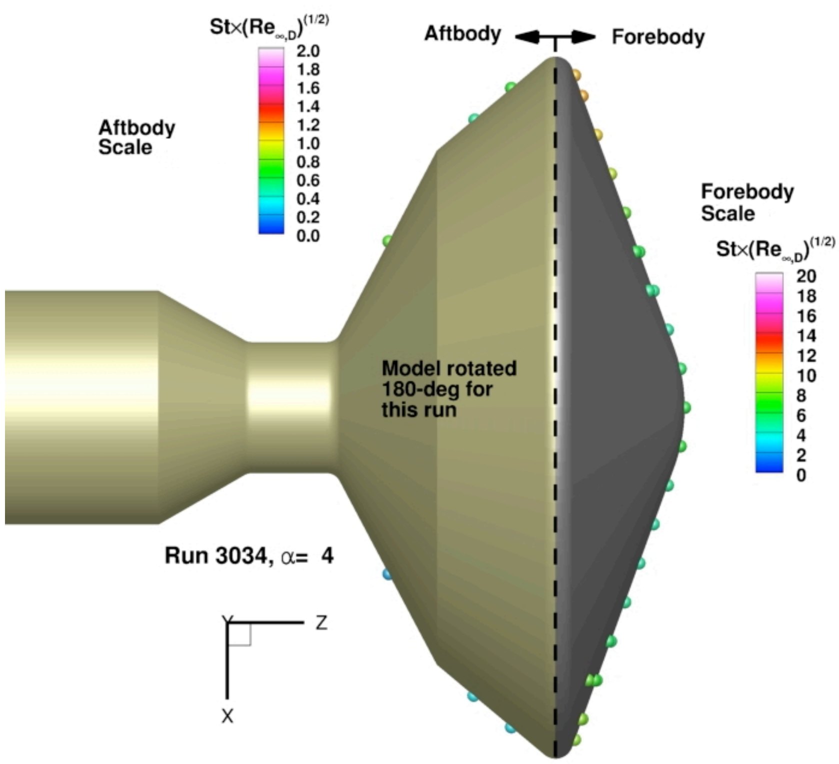


b) **Aftbody**

Figure B - 38. Run 3034 heating data, Mach 8 nozzle, $Re_\infty = 16.1\times10^6$/ft, α = 0°.

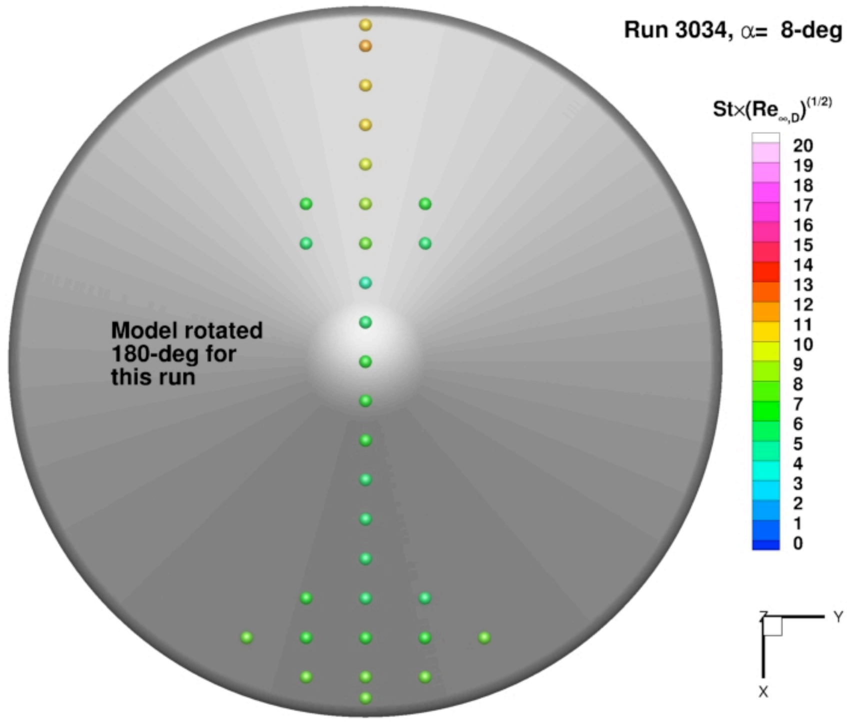


a) **Forebody**

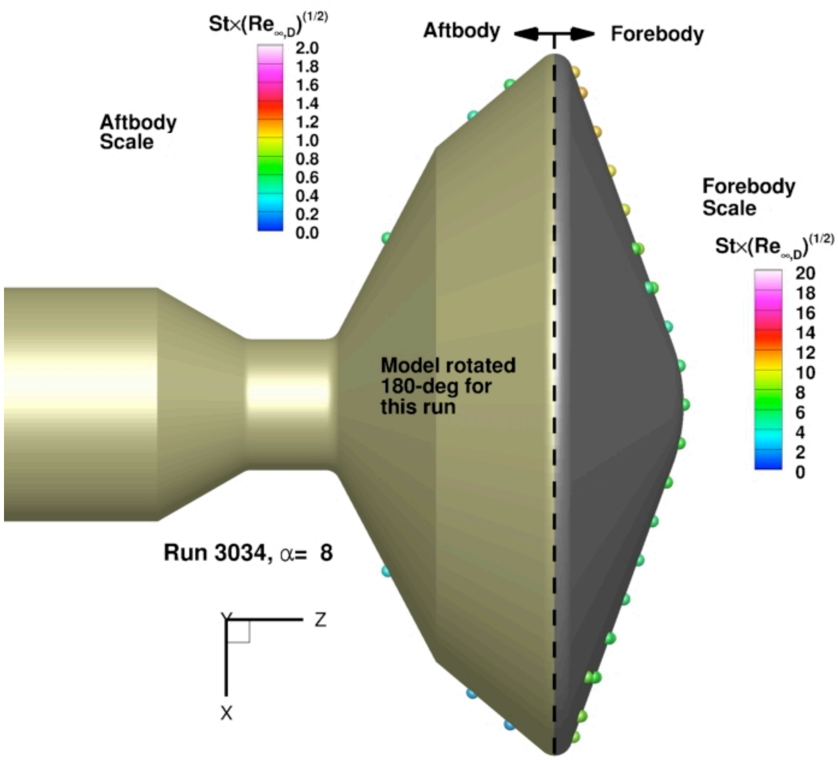


b) **Aftbody**

Figure B - 39. Run 3034 heating data, Mach 8 nozzle, $Re_\infty = 16.1\times10^6$/ft, $\alpha = 4°$.

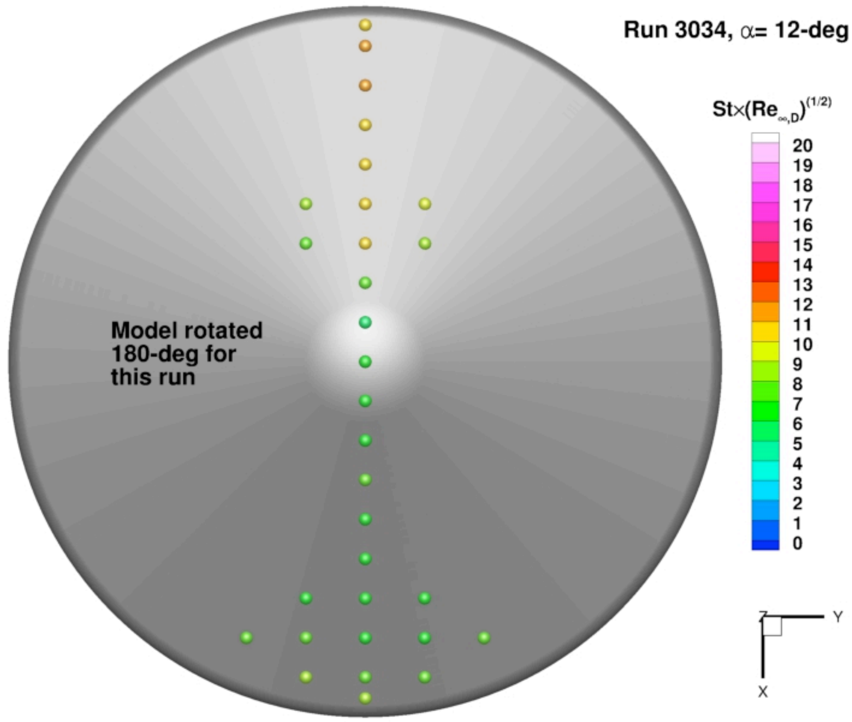


a) **Forebody**

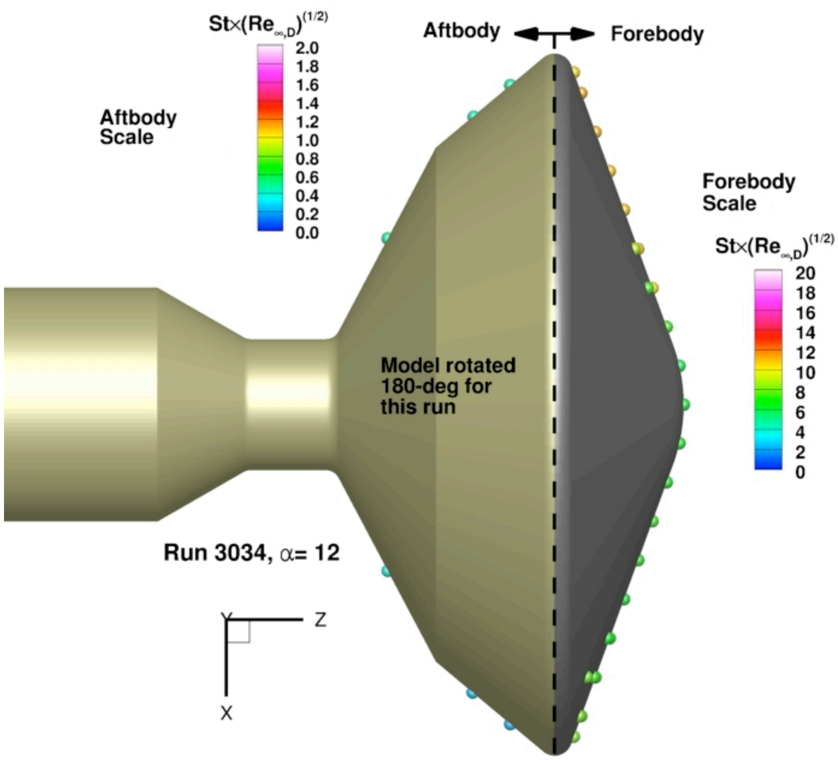


b) **Aftbody**

Figure B - 40. Run 3034 heating data, Mach 8 nozzle, $Re_\infty = 16.1{\times}10^6$/ft, $\alpha = 8°$.

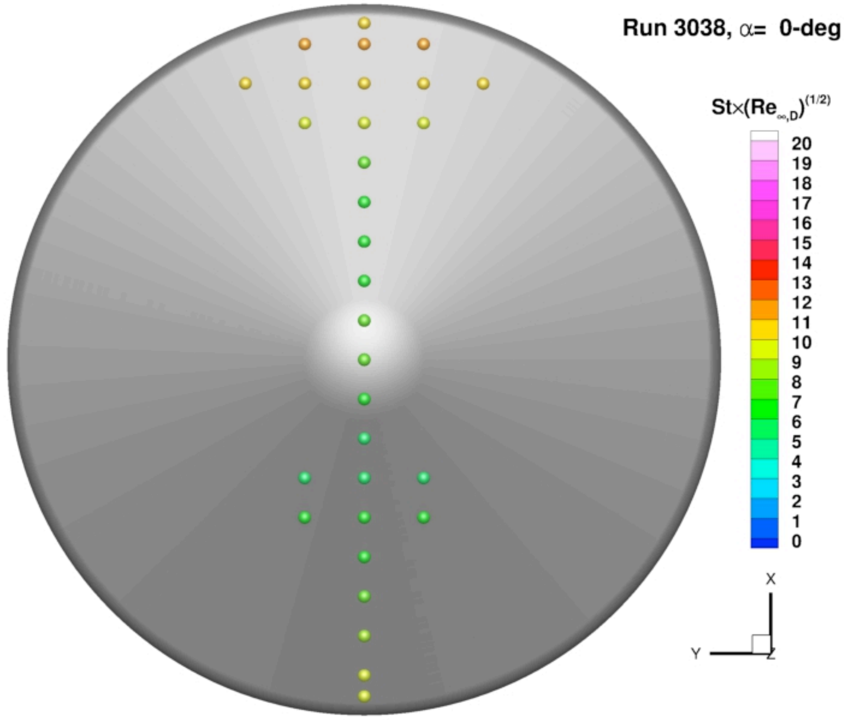


a) **Forebody**

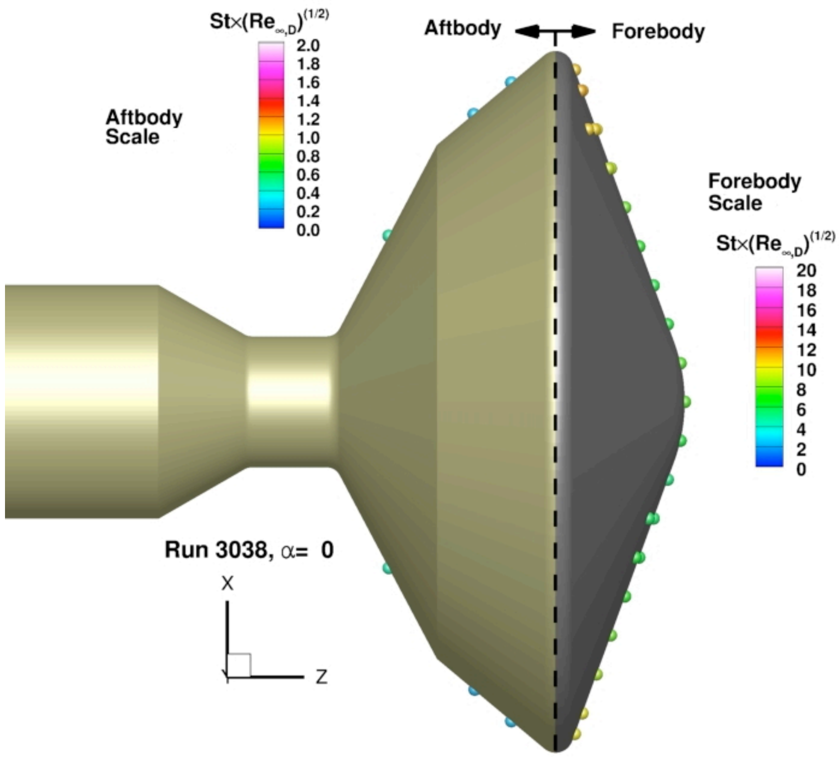


b) **Aftbody**

Figure B - 41. Run 3034 heating data, Mach 8 nozzle, $Re_\infty = 16.1 \times 10^6$/ft, $\alpha = 12°$.

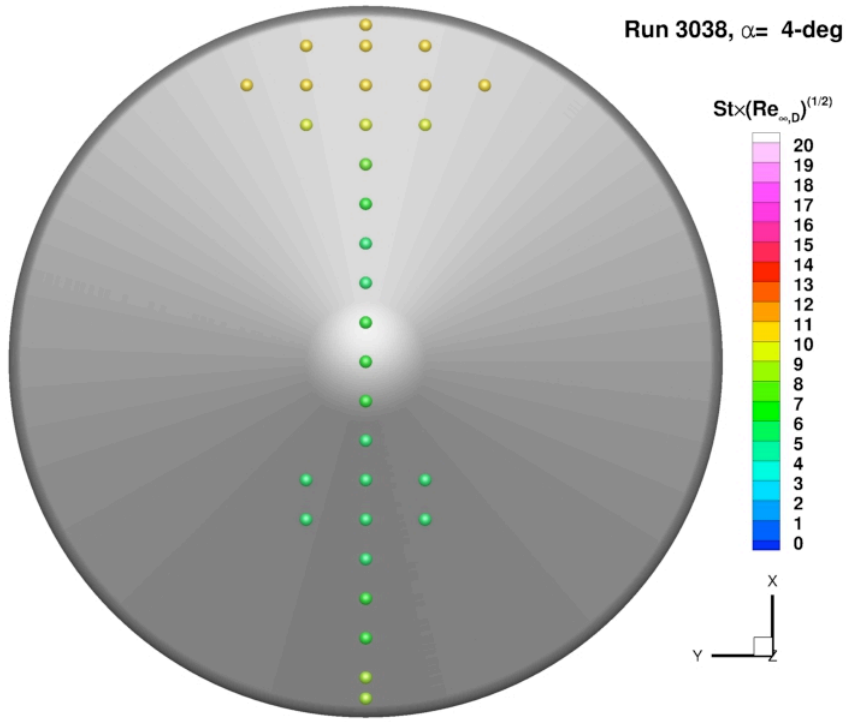


a) **Forebody**

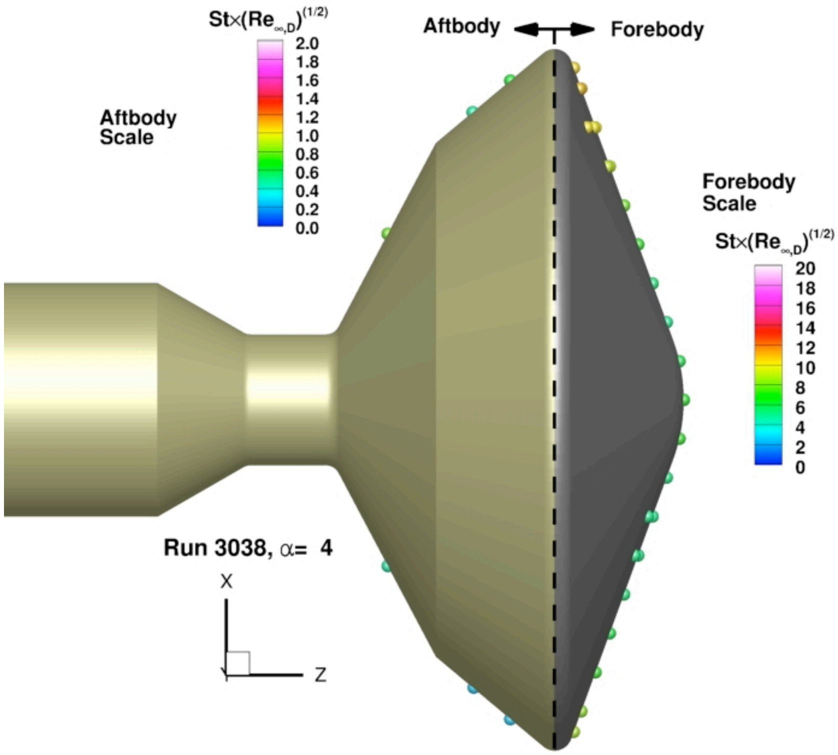


b) **Aftbody**

Figure B - 42. Run 3038 heating data, Mach 8 nozzle, $Re_\infty = 16.2\times10^6$/ft, α = 0°.

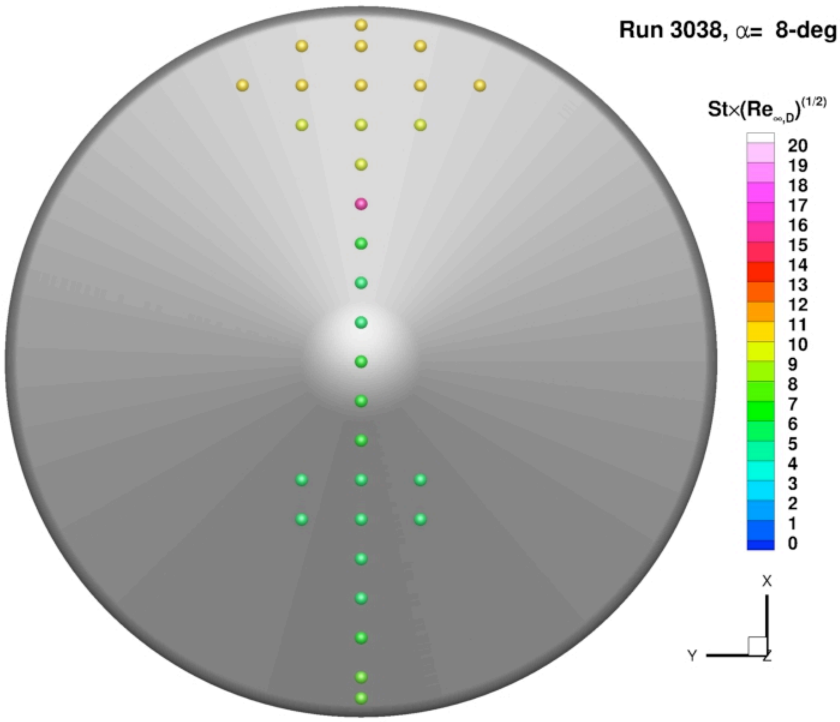


a) **Forebody**

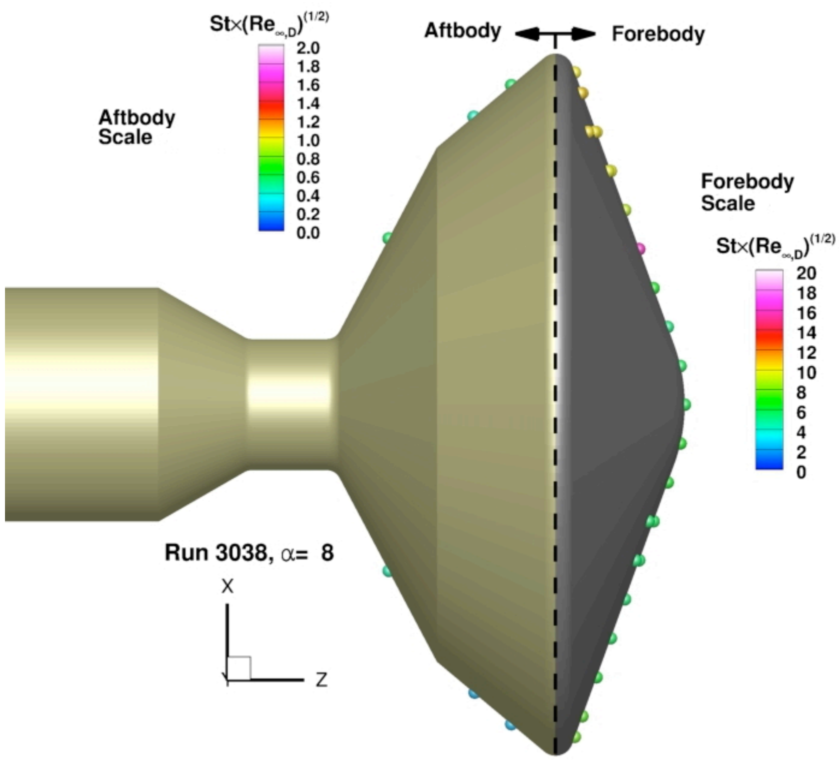


b) **Aftbody**

Figure B - 43. Run 3038 heating data, Mach 8 nozzle, $Re_\infty = 16.2\times10^6$/ft, $\alpha = 4°$.

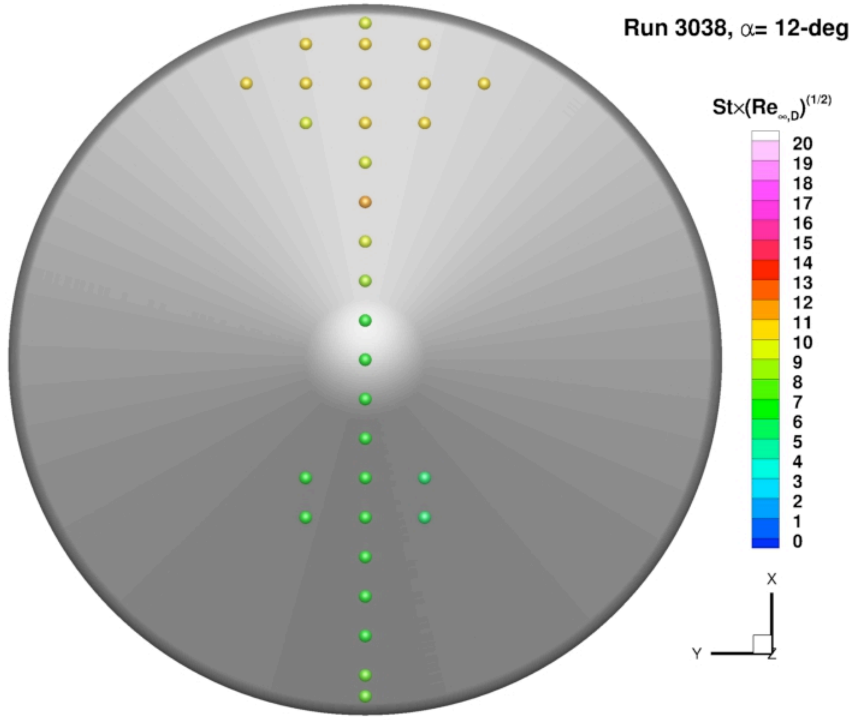


a) **Forebody**

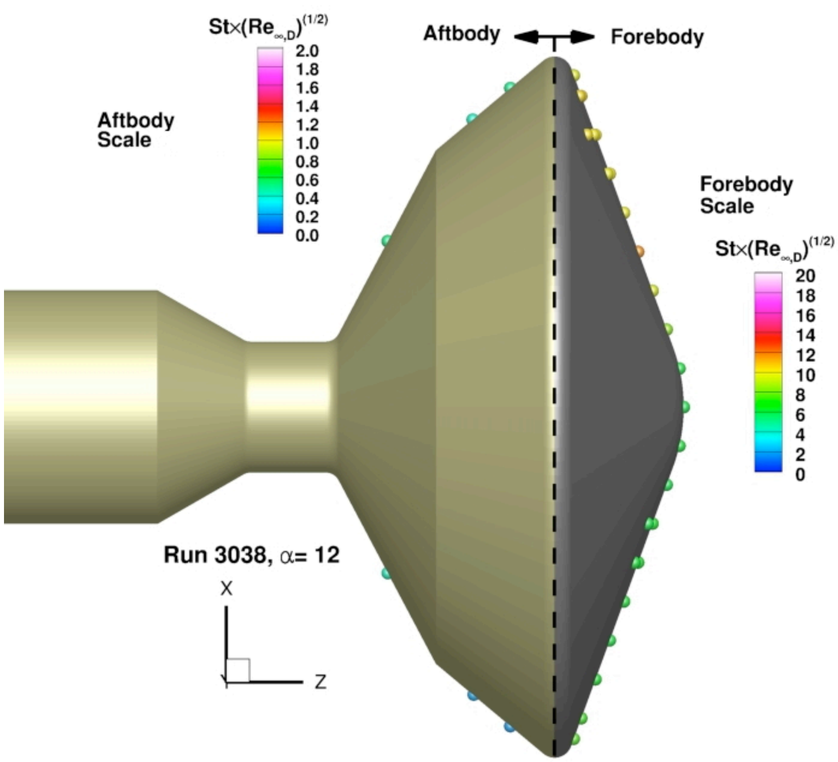


b) **Aftbody**

Figure B - 44. Run 3038 heating data, Mach 8 nozzle, $Re_\infty = 16.2 \times 10^6$/ft, α = 8°.

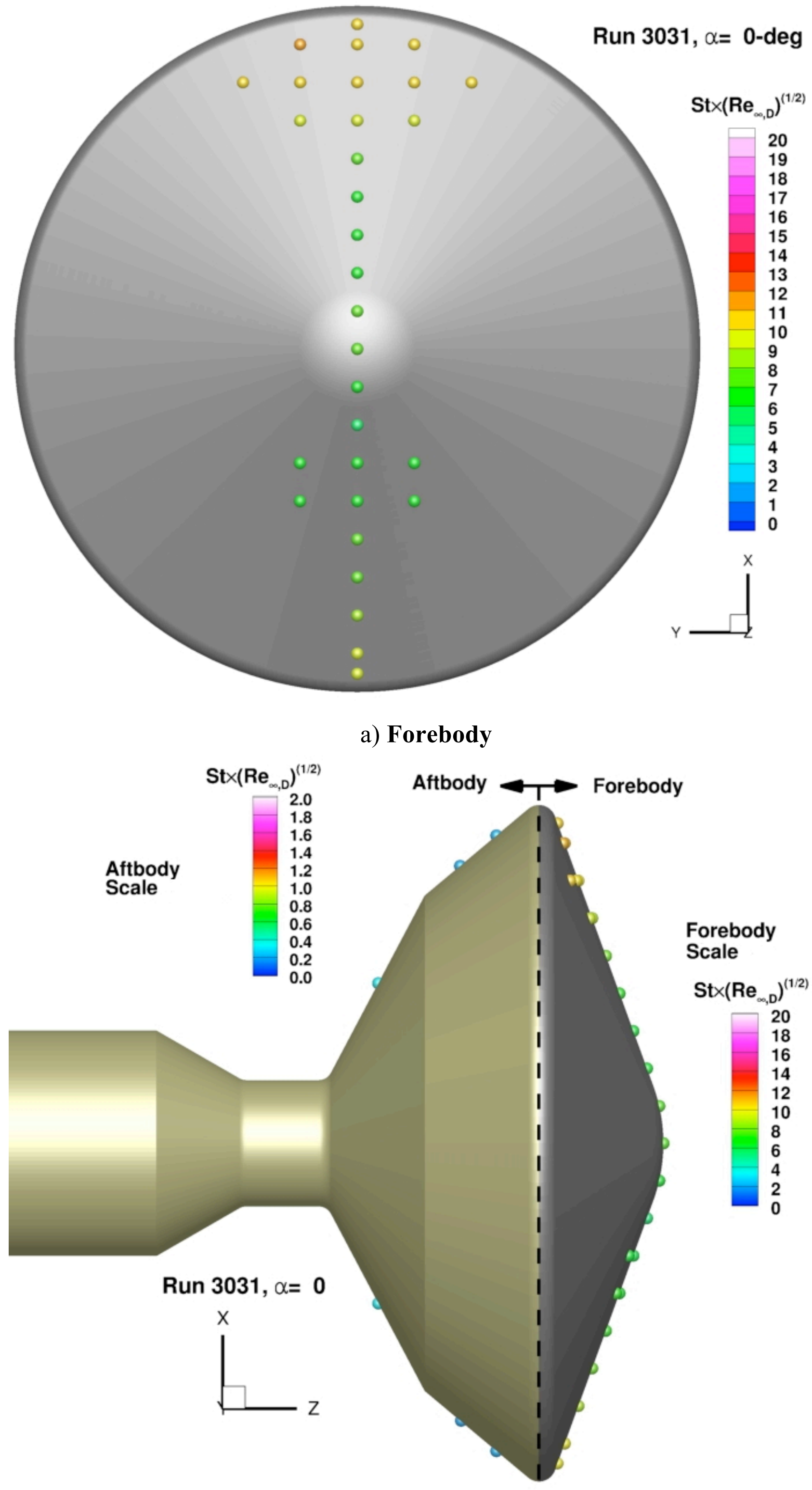


a) **Forebody**



b) **Aftbody**

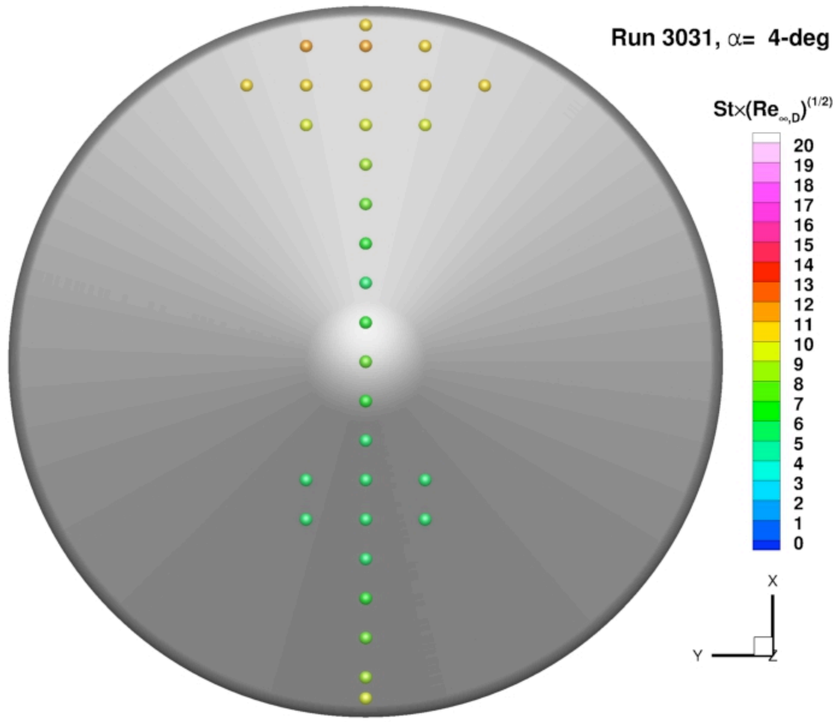
Figure B - 45. Run 3038 heating data, Mach 8 nozzle, $Re_\infty = 16.2\times10^6$/ft, α = 12°.



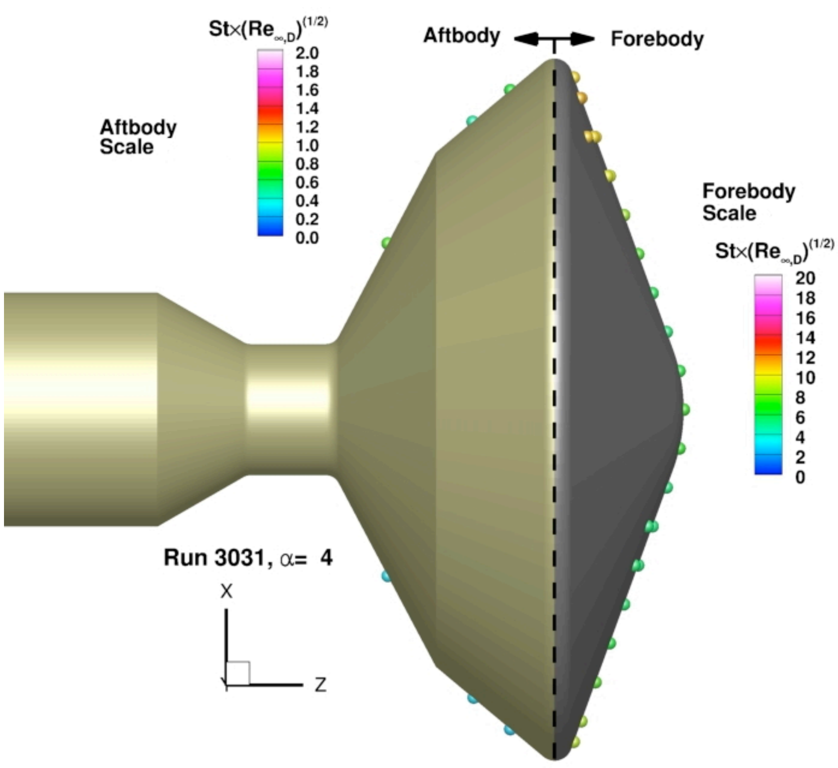
a) **Forebody**

b) **Aftbody**

Figure B - 46. Run 3031 heating data, Mach 10 nozzle, $Re_\infty = 16.3\times10^6$/ft, $\alpha = 0°$.

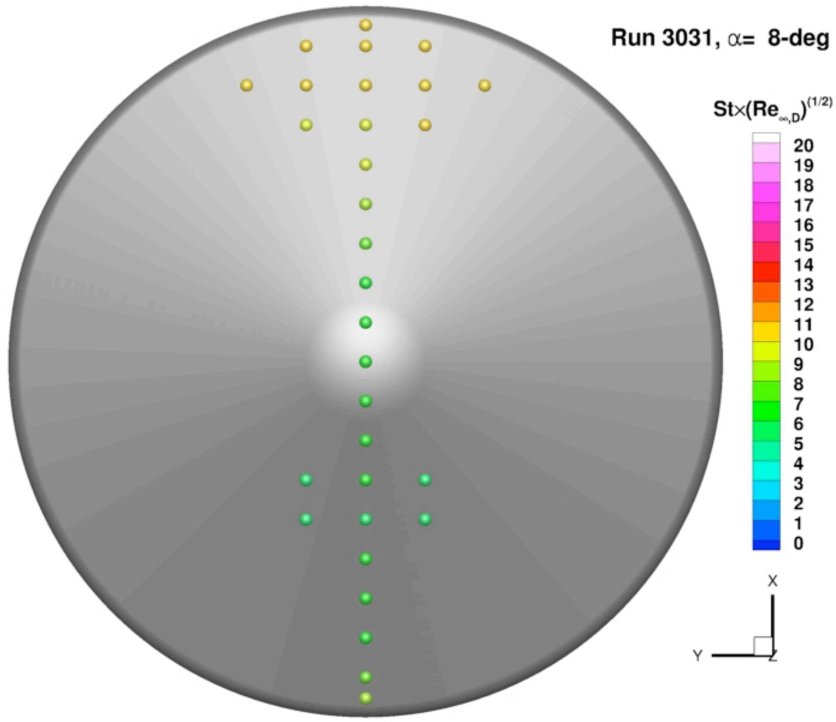


a) **Forebody**

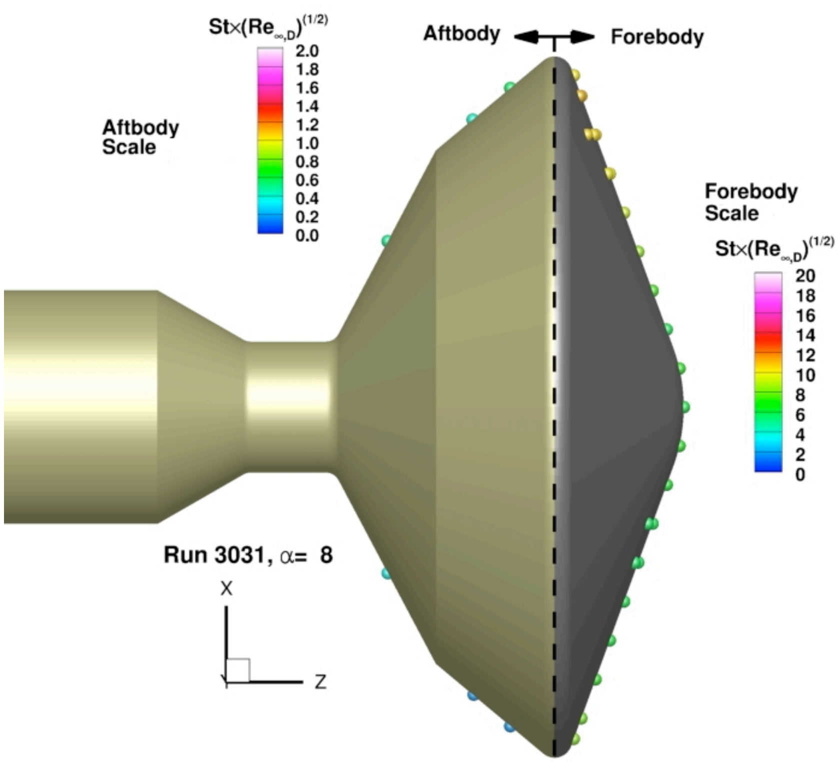


b) **Aftbody**

Figure B - 47. Run 3031 heating data, Mach 10 nozzle, $Re_\infty = 16.3\times10^6$/ft, α = 4°.

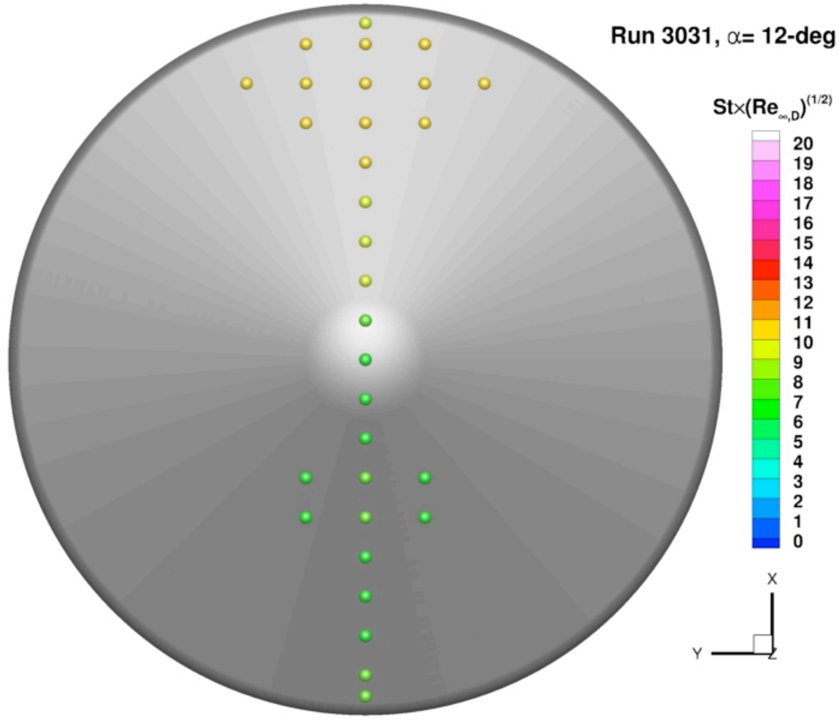


a) **Forebody**

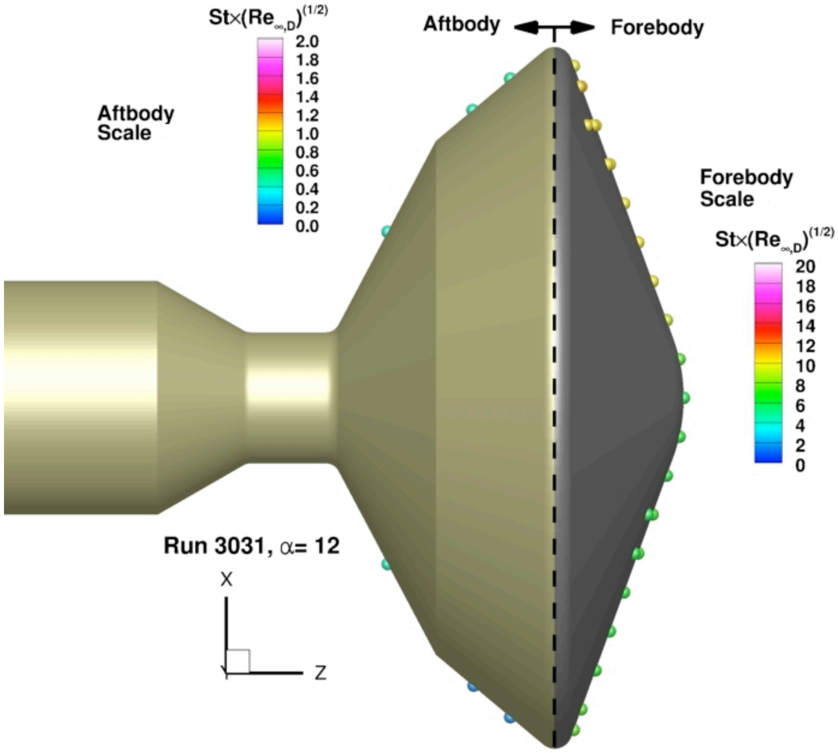


b) **Aftbody**

Figure B - 48. Run 3031 heating data, Mach 10 nozzle, $Re_\infty = 16.3\times10^6$/ft, $\alpha = 8°$.

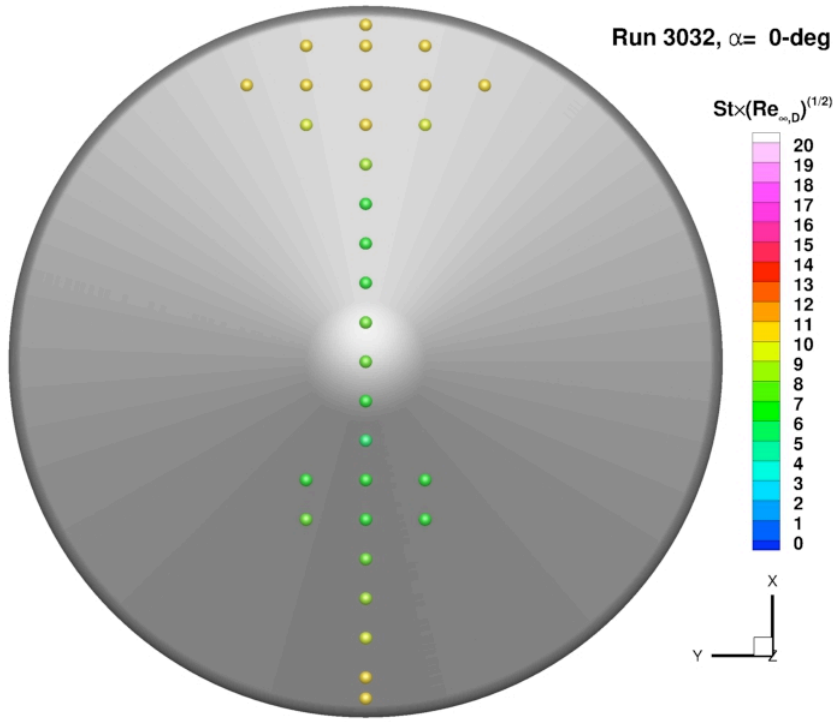


a) **Forebody**

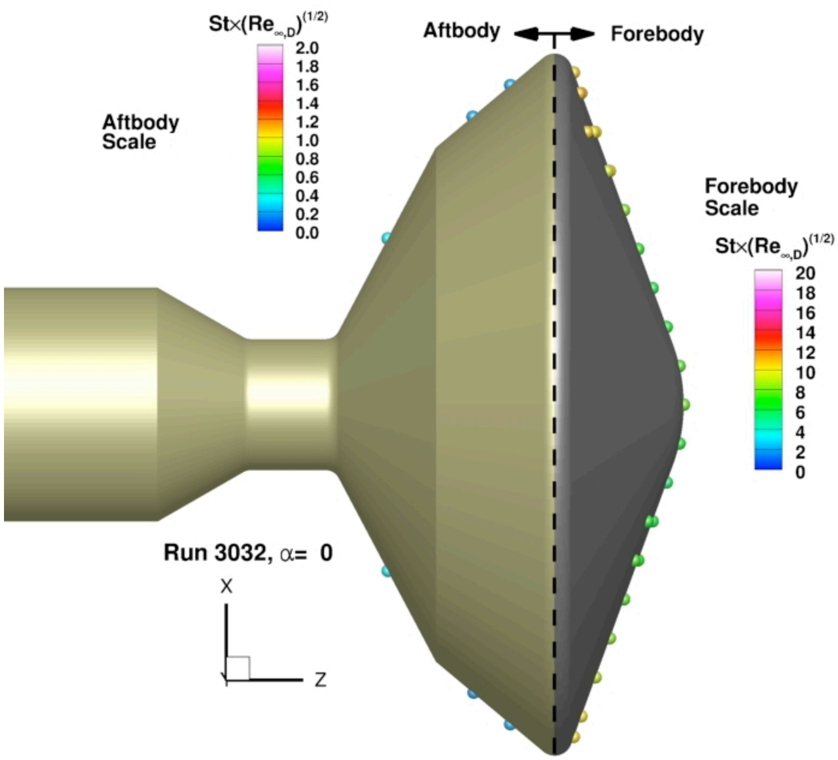


b) **Aftbody**

Figure B - 49. Run 3031 heating data, Mach 8 nozzle, $Re_\infty = 16.3\times10^6$/ft, α = 12°.

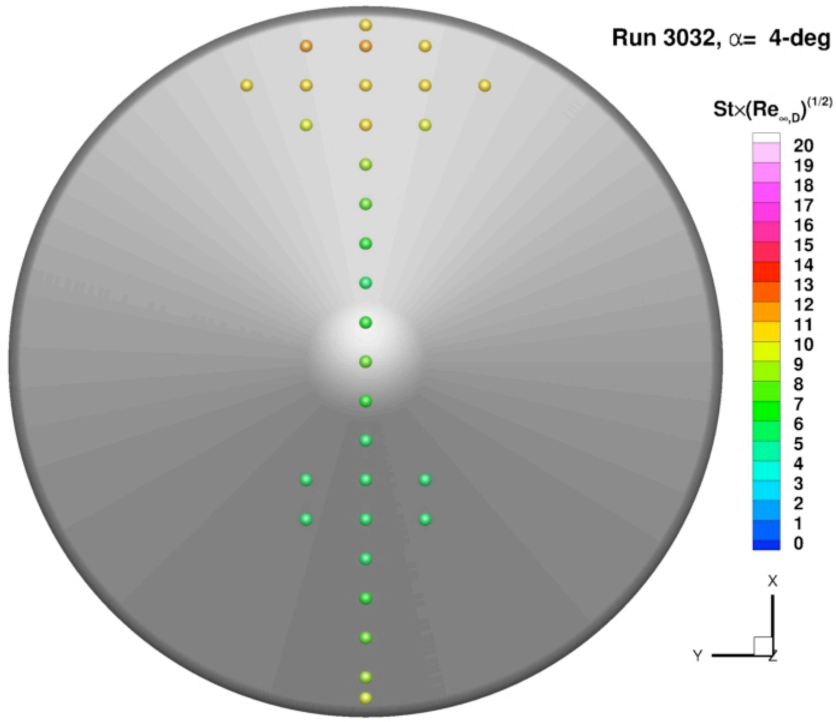


a) **Forebody**

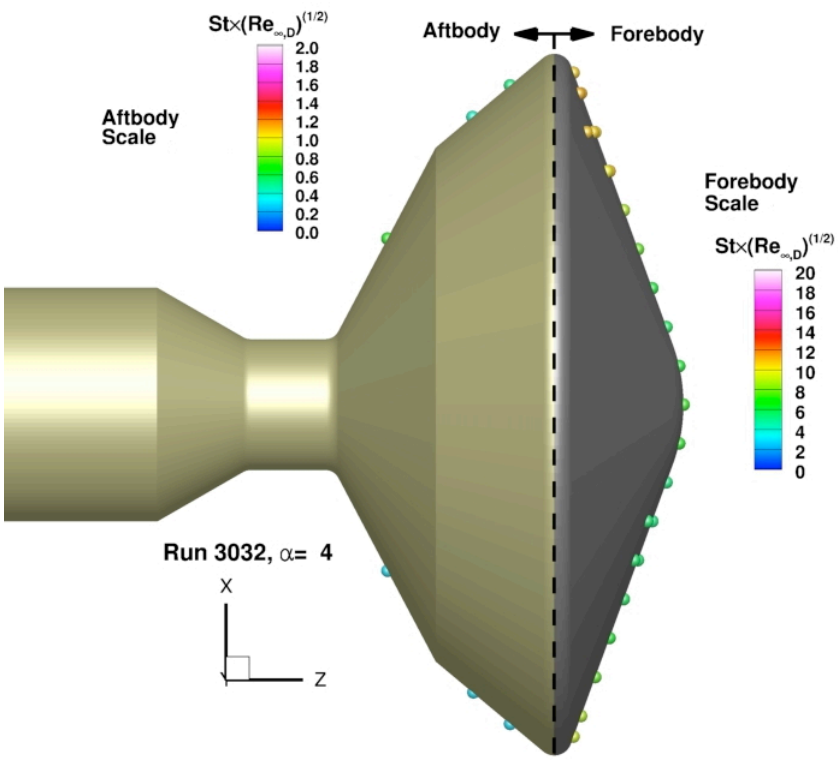


b) **Aftbody**

Figure B - 50. Run 3032 heating data, Mach 8 nozzle, $Re_\infty = 16.4\times10^6$/ft, $\alpha = 0°$.

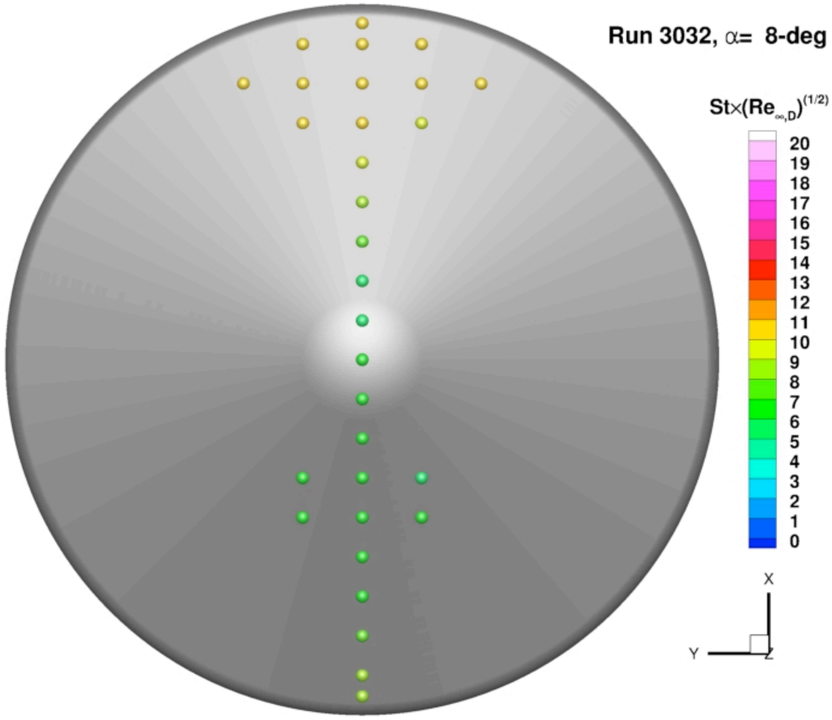


a) **Forebody**

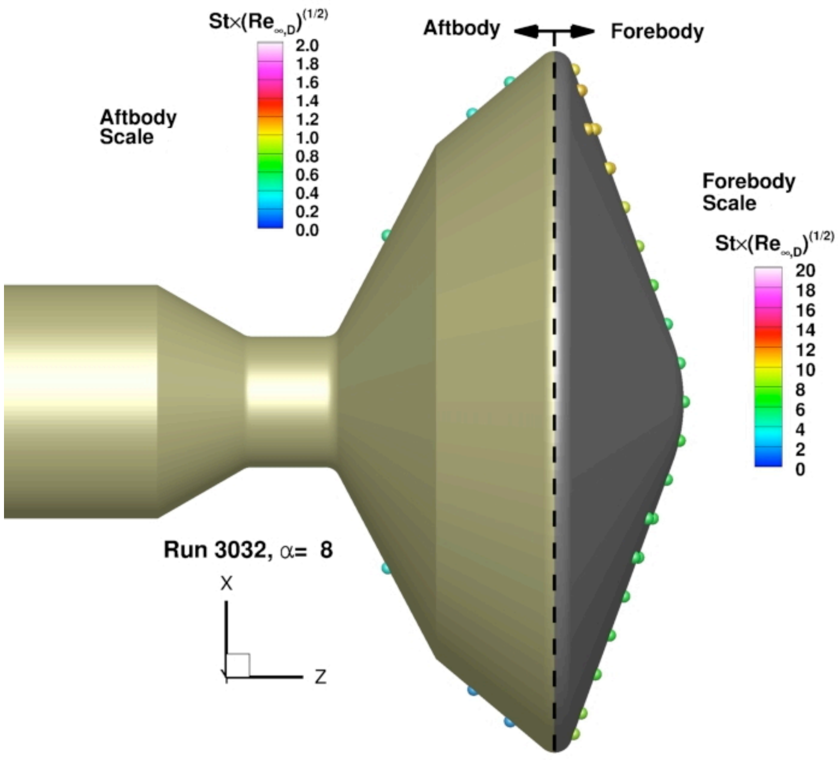


b) **Aftbody**

Figure B - 51. Run 3032 heating data, Mach 8 nozzle, $Re_\infty = 16.4 \times 10^6$/ft, $\alpha = 4°$.

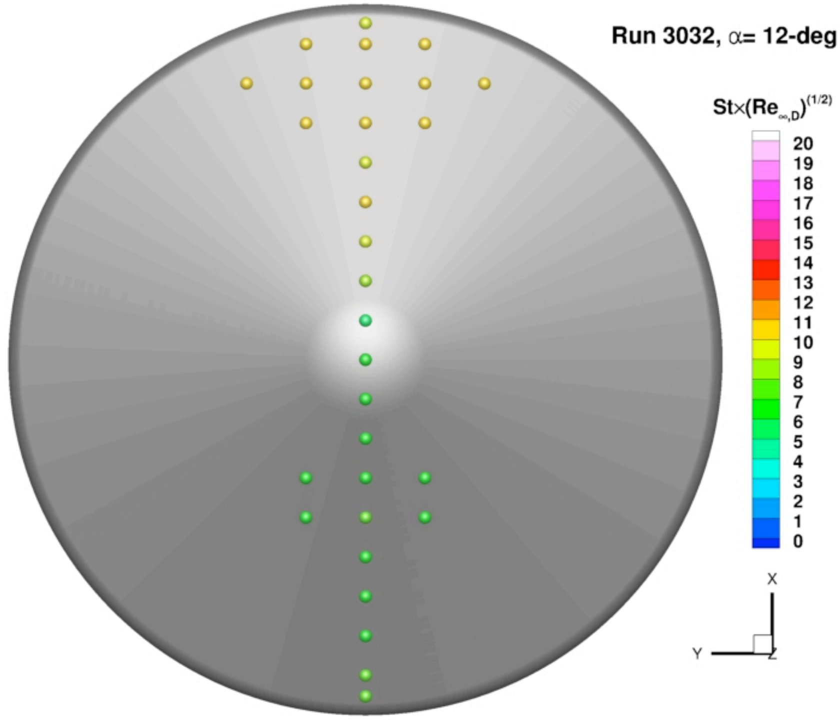


a) **Forebody**

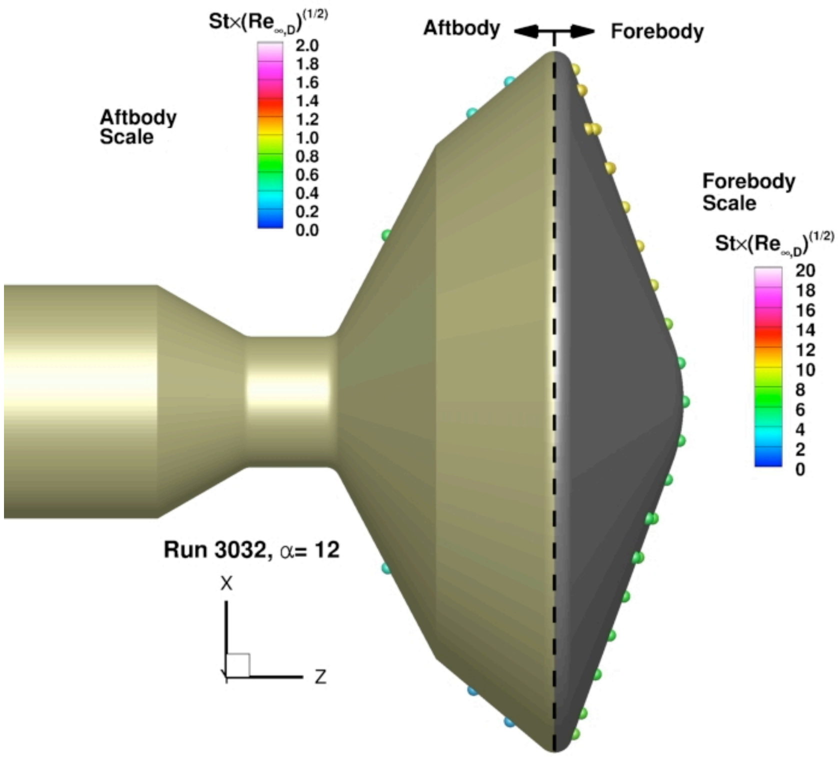


b) **Aftbody**

Figure B - 52. Run 3032 heating data, Mach 8 nozzle, $Re_\infty = 16.4 \times 10^6$/ft, $\alpha = 8°$.

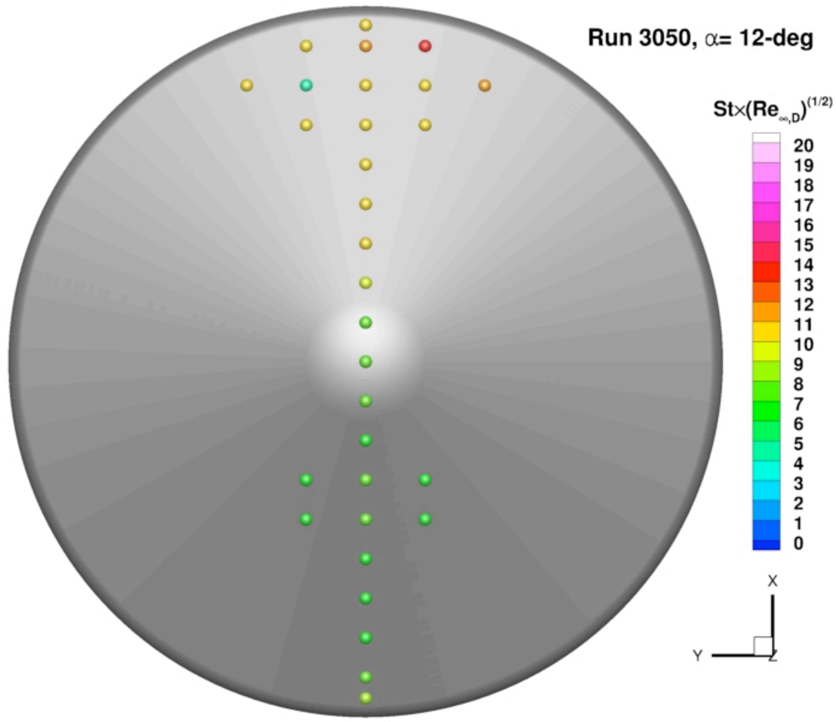


a) **Forebody**

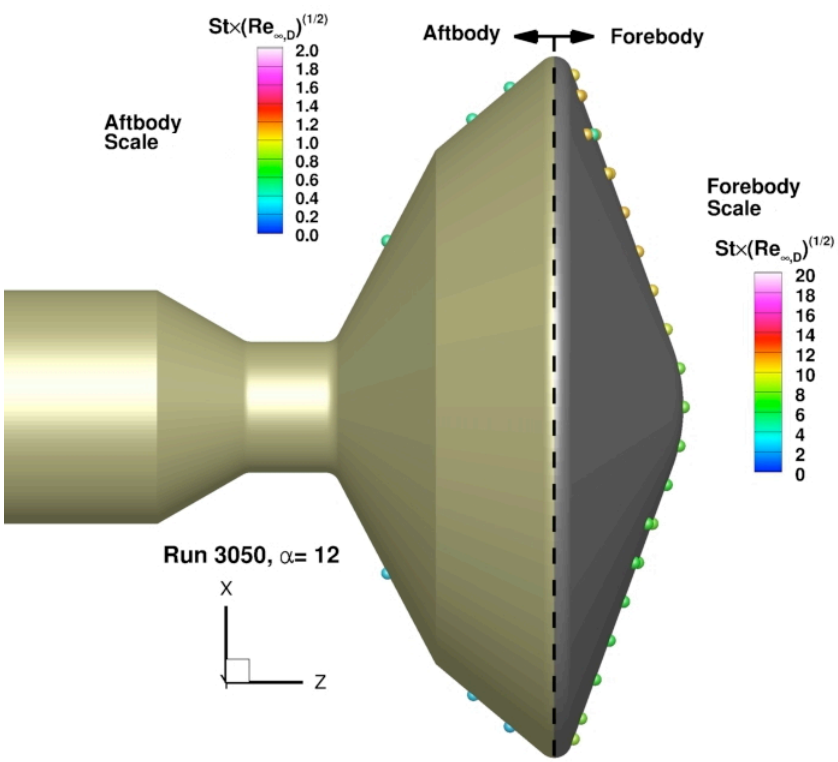


b) **Aftbody**

Figure B - 53. Run 3032 heating data, Mach 8 nozzle, $Re_\infty = 16.4\times10^6$/ft, α = 12°.

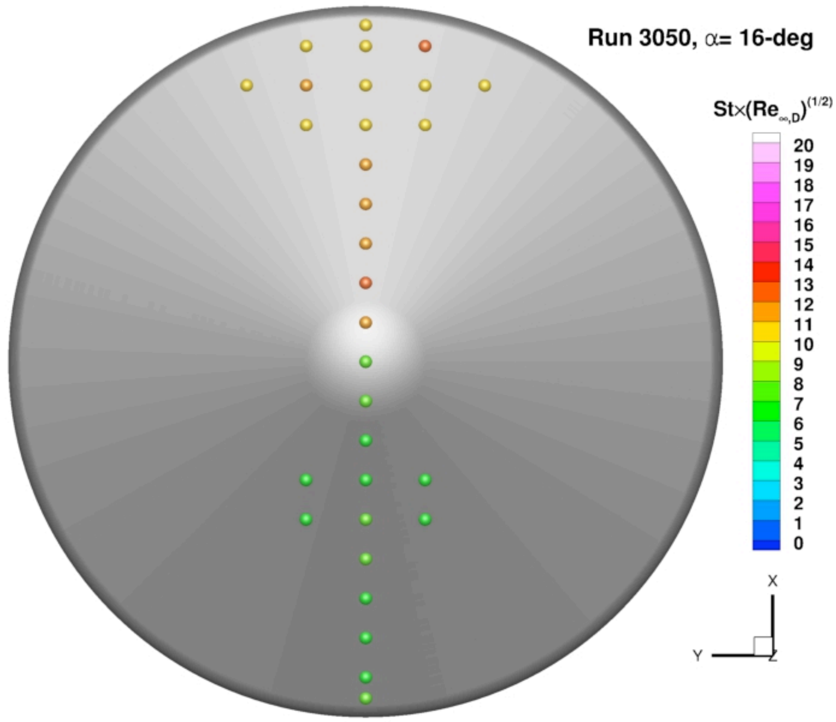


a) **Forebody**

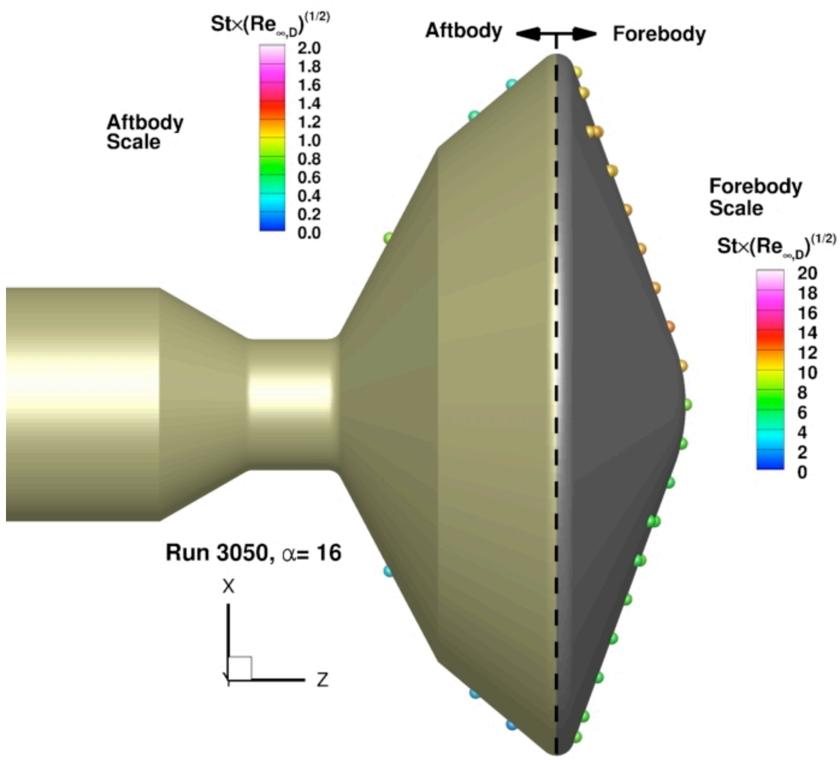


b) **Aftbody**

Figure B - 54. Run 3050 heating data, Mach 8 nozzle, $Re_\infty = 16.4\times10^6$/ft, α = 12°.

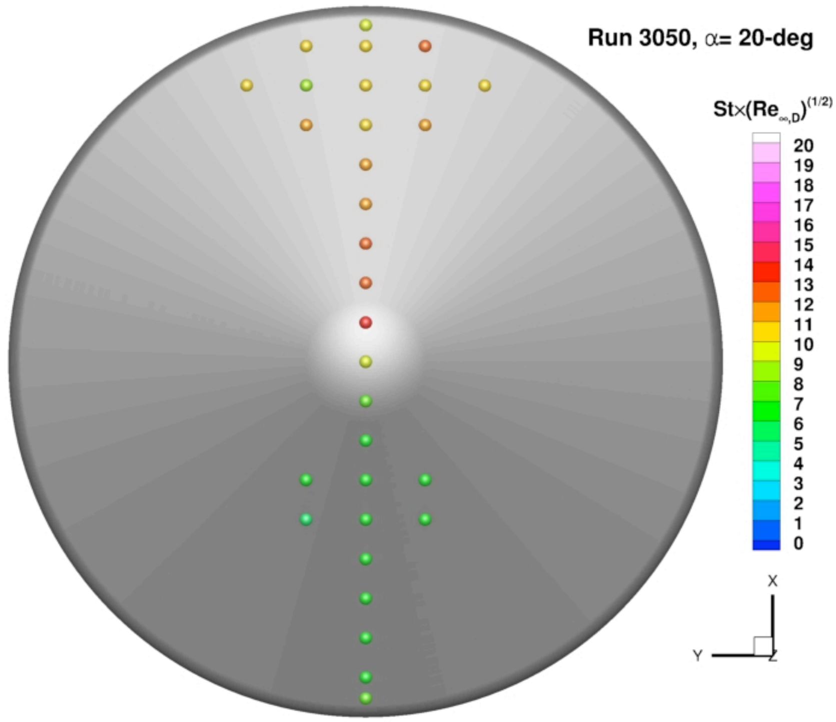


a) **Forebody**

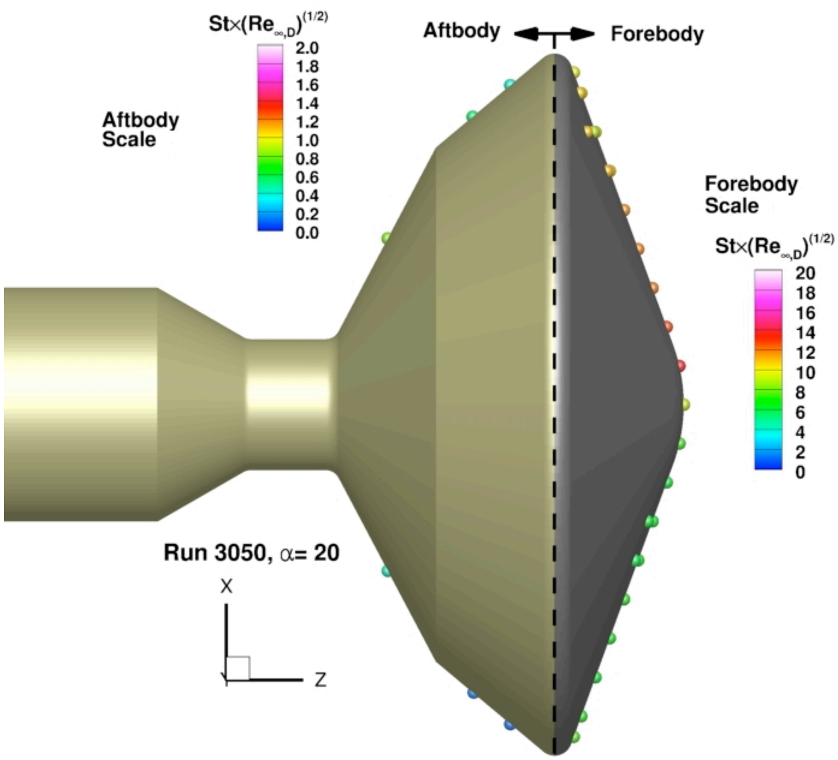


b) **Aftbody**

Figure B - 55. Run 3050 heating data, Mach 8 nozzle, $Re_\infty = 16.4\times10^6$/ft, $\alpha = 16°$.

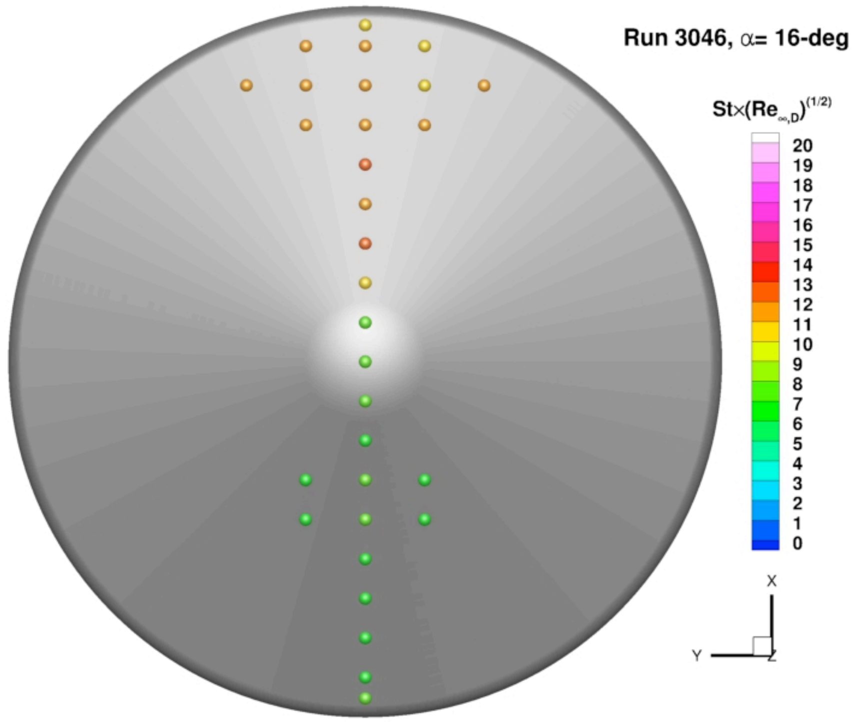


a) **Forebody**

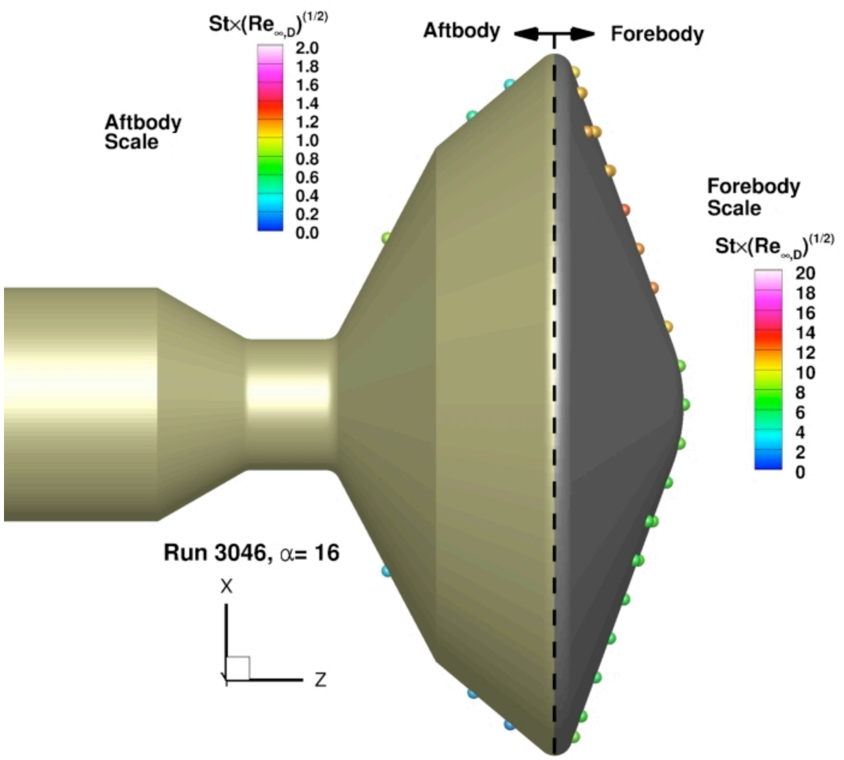


b) **Aftbody**

Figure B - 56. Run 3050 heating data, Mach 8 nozzle, $Re_\infty = 16.4 \times 10^6$/ft, α = 20°.

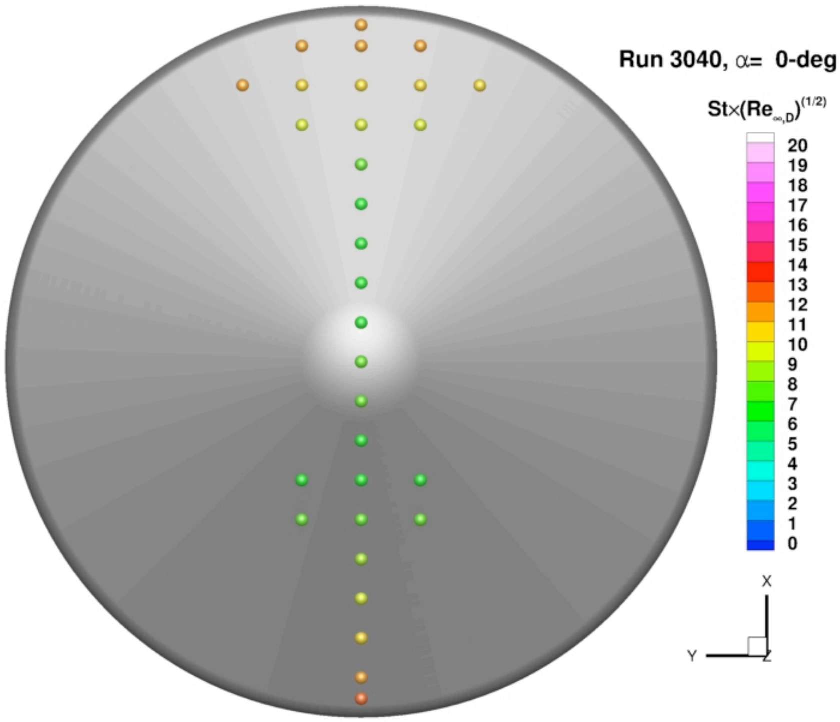


a) **Forebody**

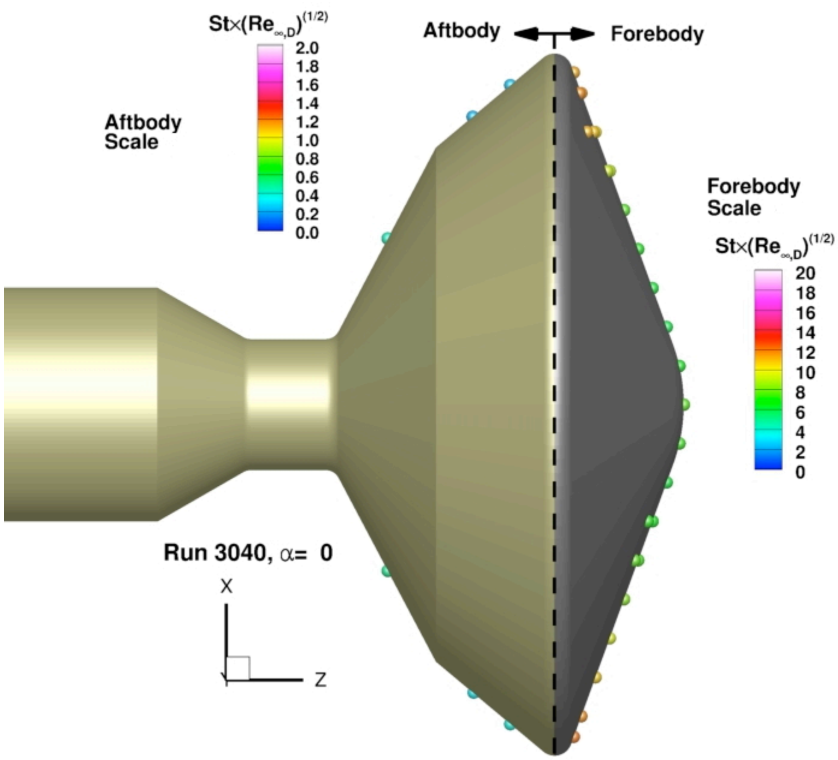


b) **Aftbody**

Figure B - 57. Run 3046 heating data, Mach 8 nozzle, $Re_\infty = 16.7\times10^6$/ft, α = 16°.

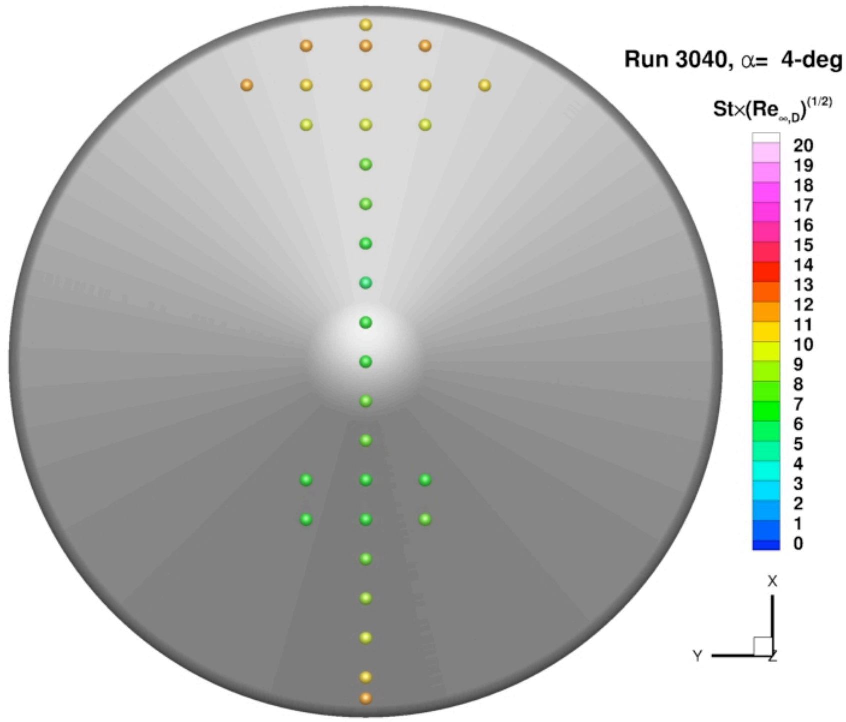


a) **Forebody**

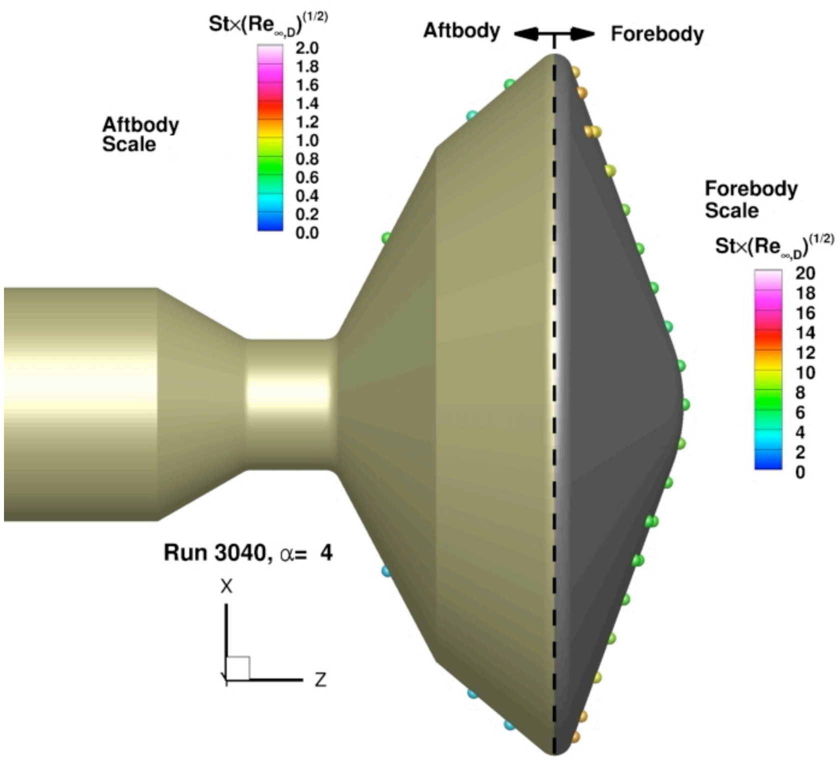


b) **Aftbody**

Figure B - 58. Run 3040 heating data, Mach 8 nozzle, $Re_\infty = 17.0\times10^6$/ft, $\alpha = 0°$.

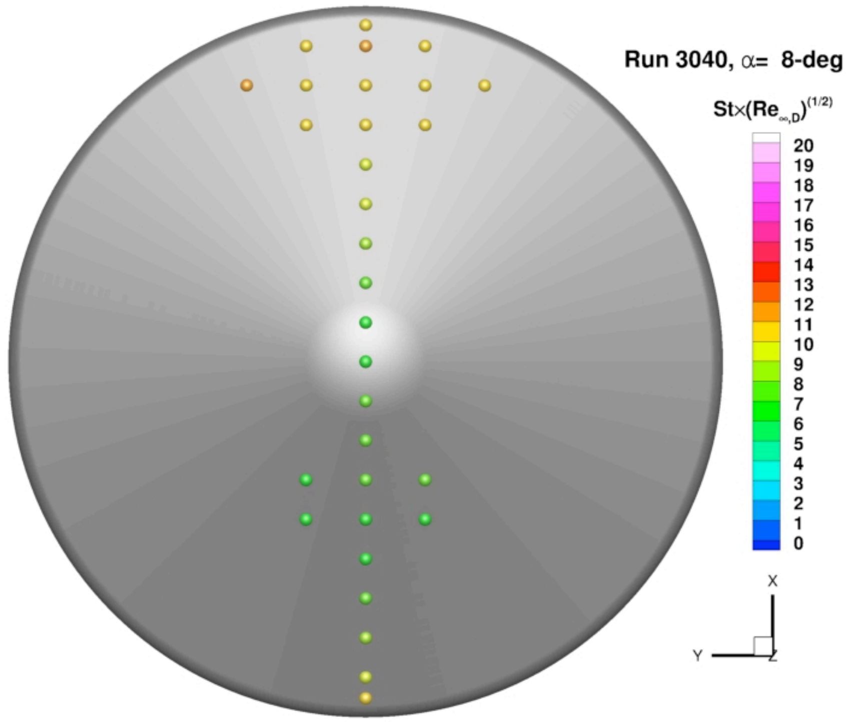


a) **Forebody**

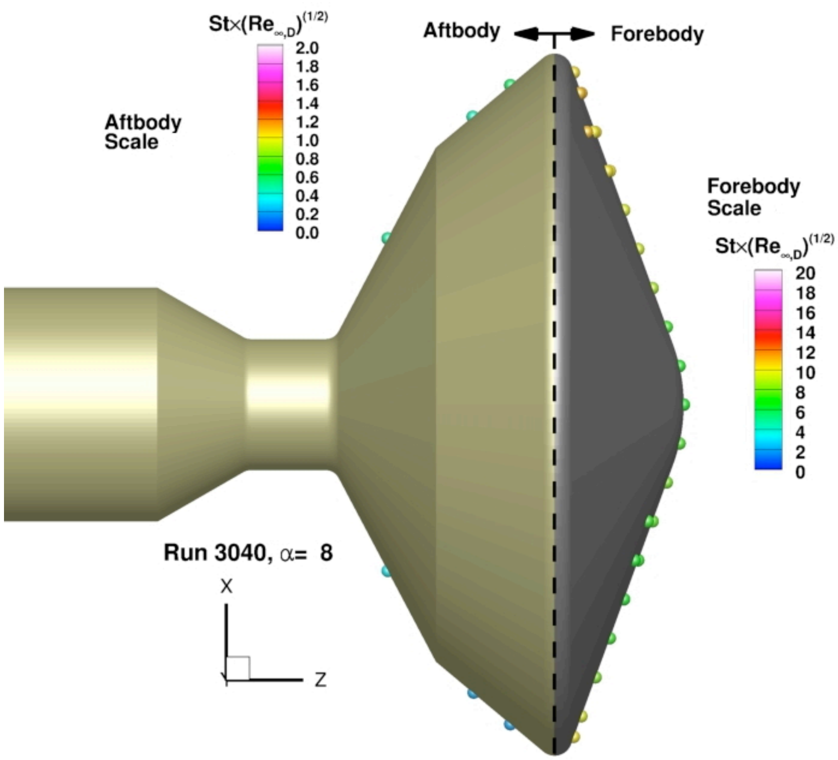


b) **Aftbody**

Figure B - 59. Run 3040 heating data, Mach 8 nozzle, $Re_\infty = 17.0{\times}10^6$/ft, α = 4°.

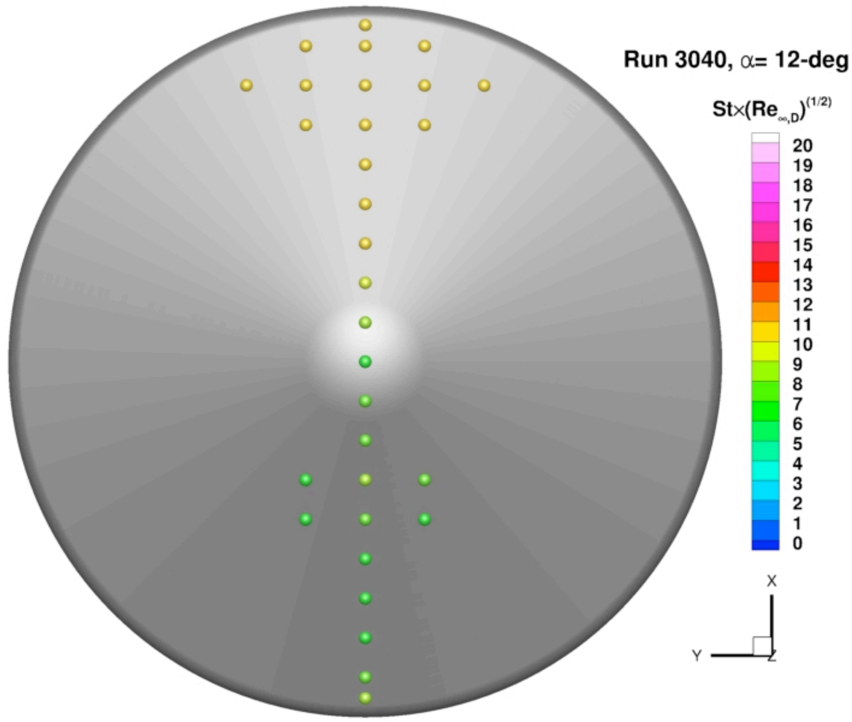


a) **Forebody**

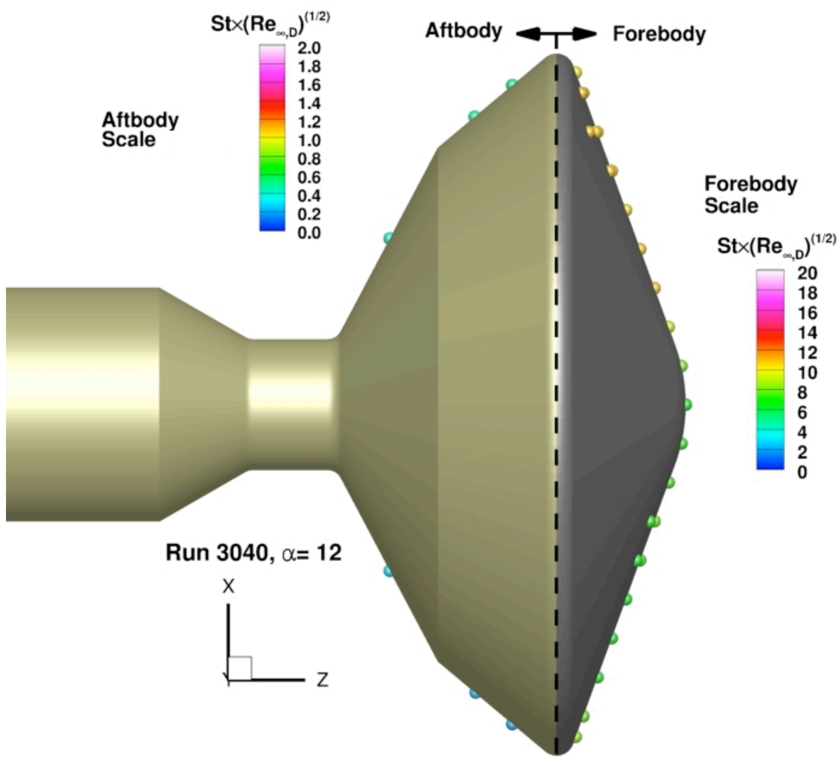


b) **Aftbody**

Figure B - 60. Run 3040 heating data, Mach 8 nozzle, $Re_\infty = 17.0\times10^6$/ft, α = 8°.

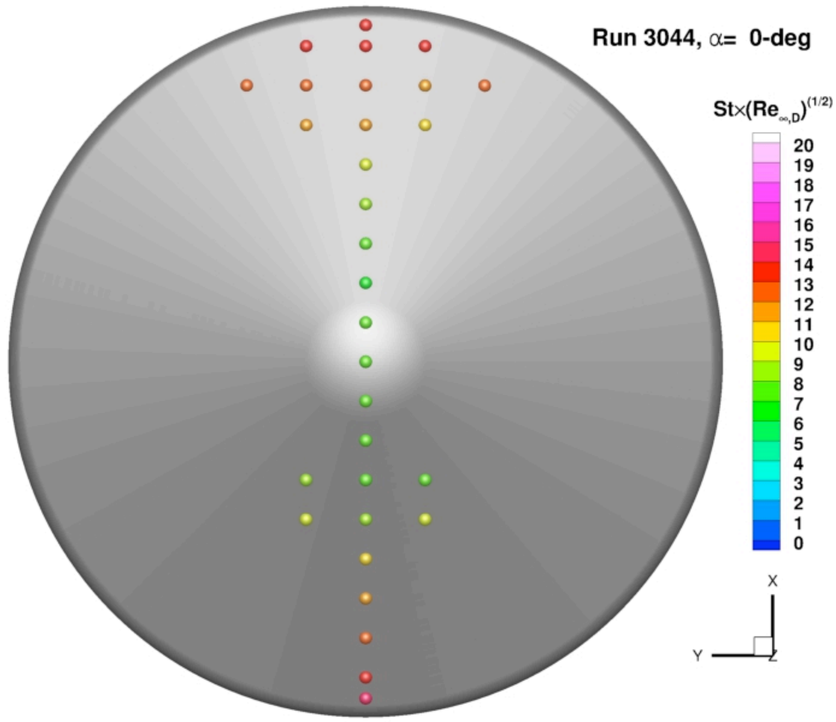


a) **Forebody**

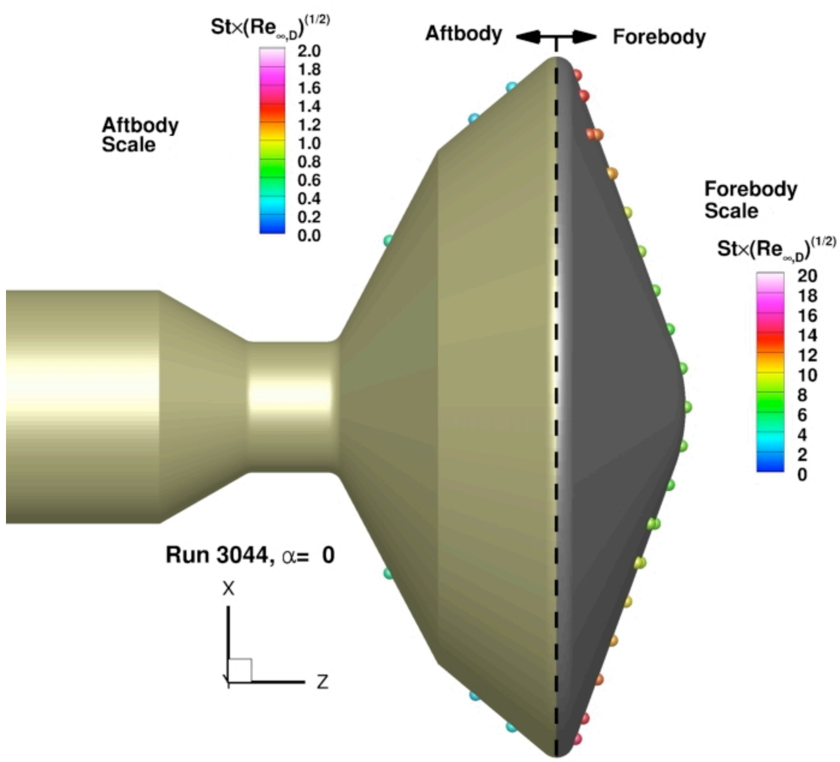


b) **Aftbody**

Figure B - 61. Run 3040 heating data, Mach 8 nozzle, $Re_{\infty} = 17.0\times10^{6}$/ft, α = 12°.

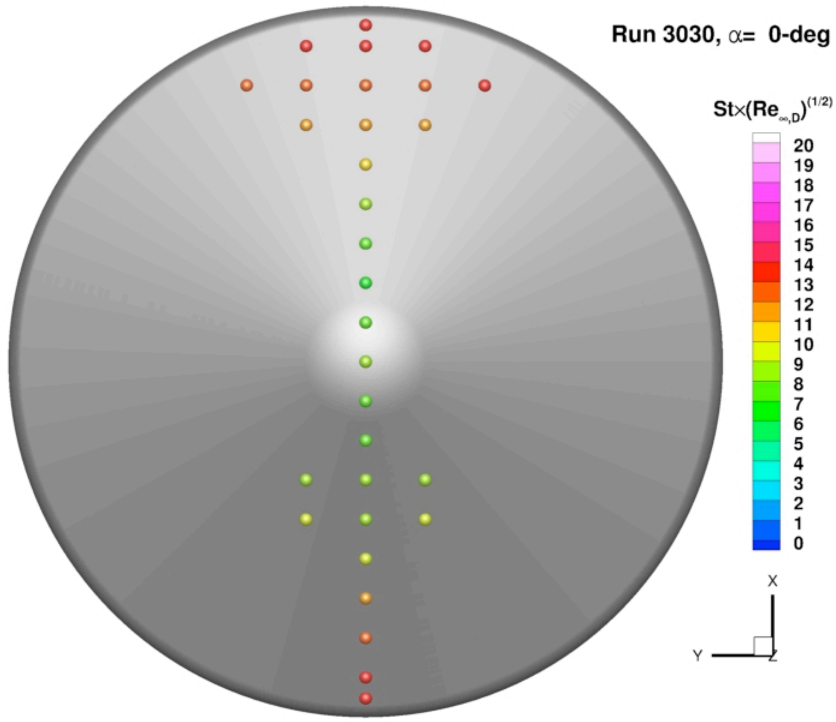


a) **Forebody**

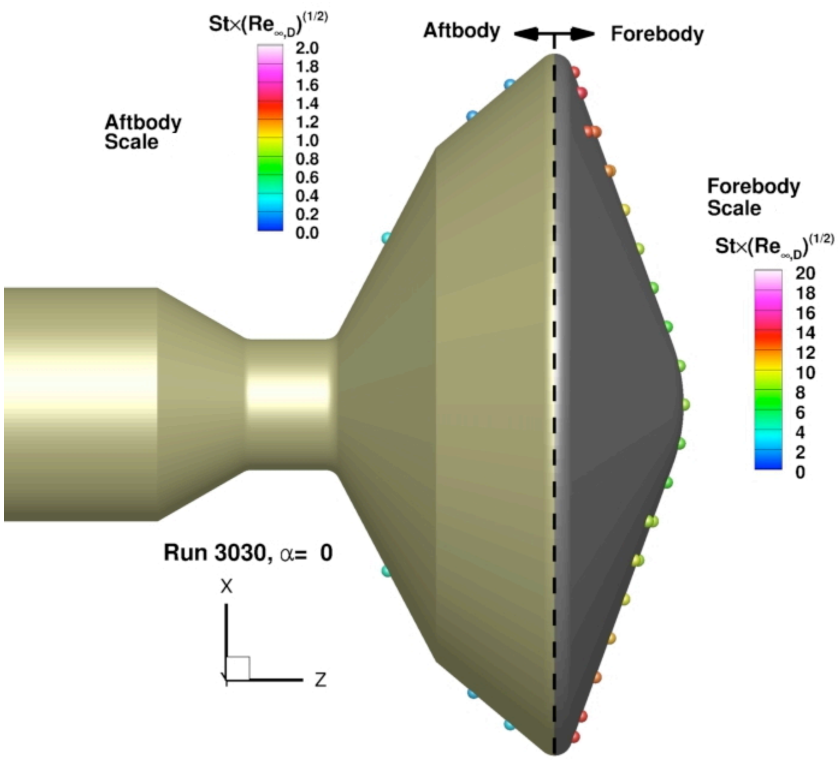


b) **Aftbody**

Figure B - 62. Run 3044 heating data, Mach 8 nozzle, $Re_\infty = 21.1\times10^6$/ft, α = 0°.

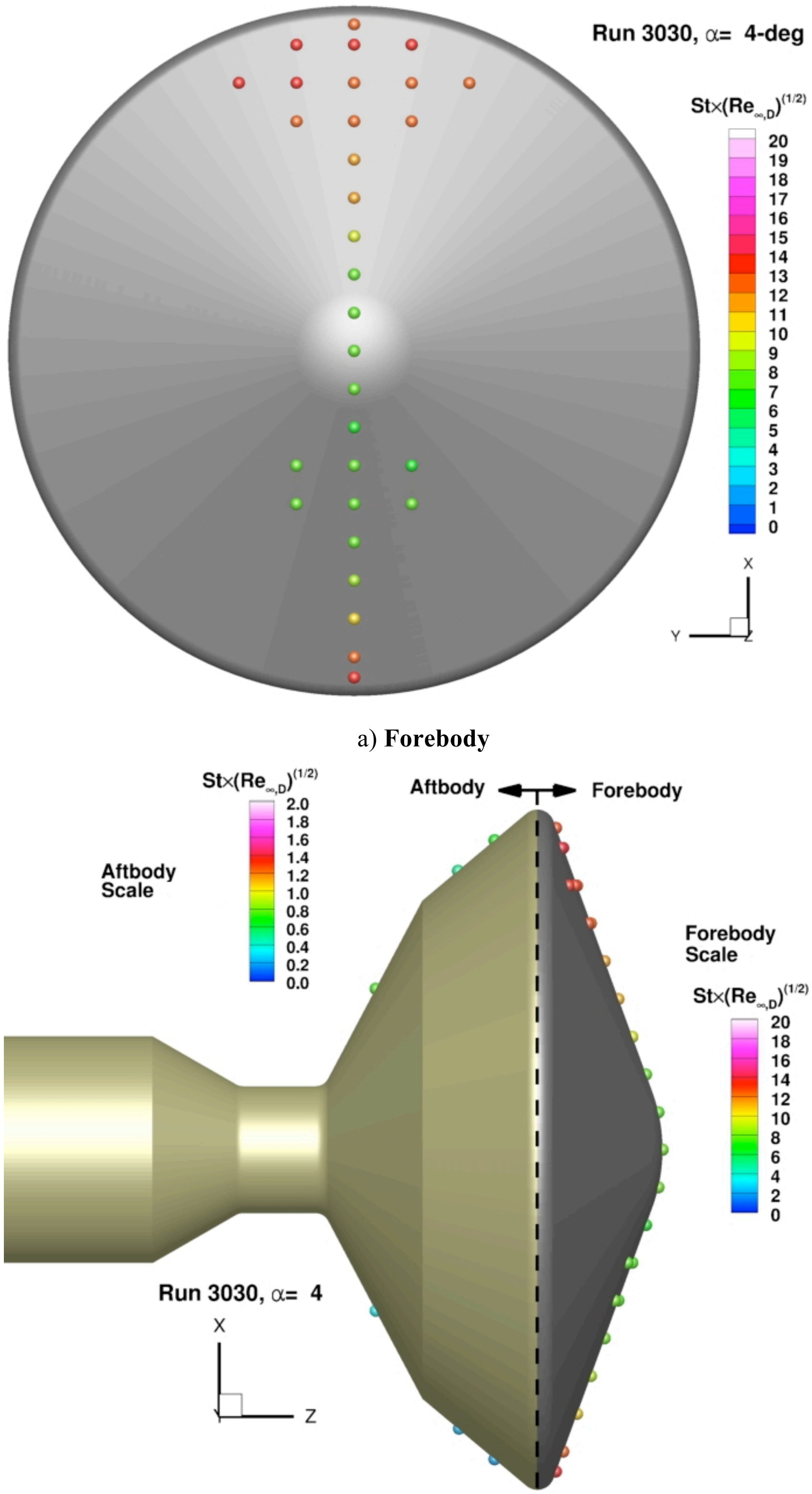


a) **Forebody**



b) **Aftbody**

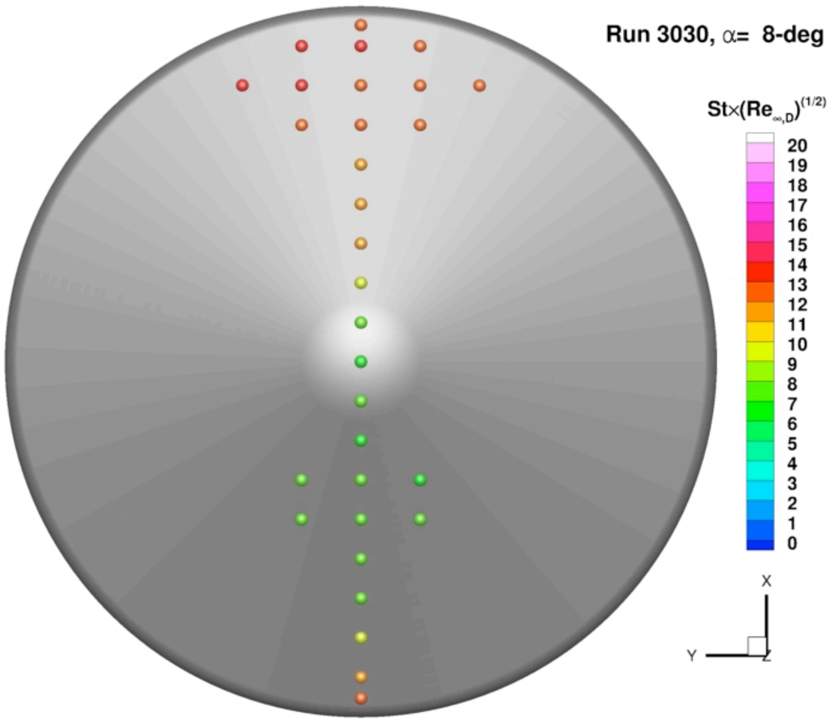
Figure B - 63. Run 3030 heating data, Mach 8 nozzle, $Re_\infty = 21.5\times10^6$/ft, α = 0°.



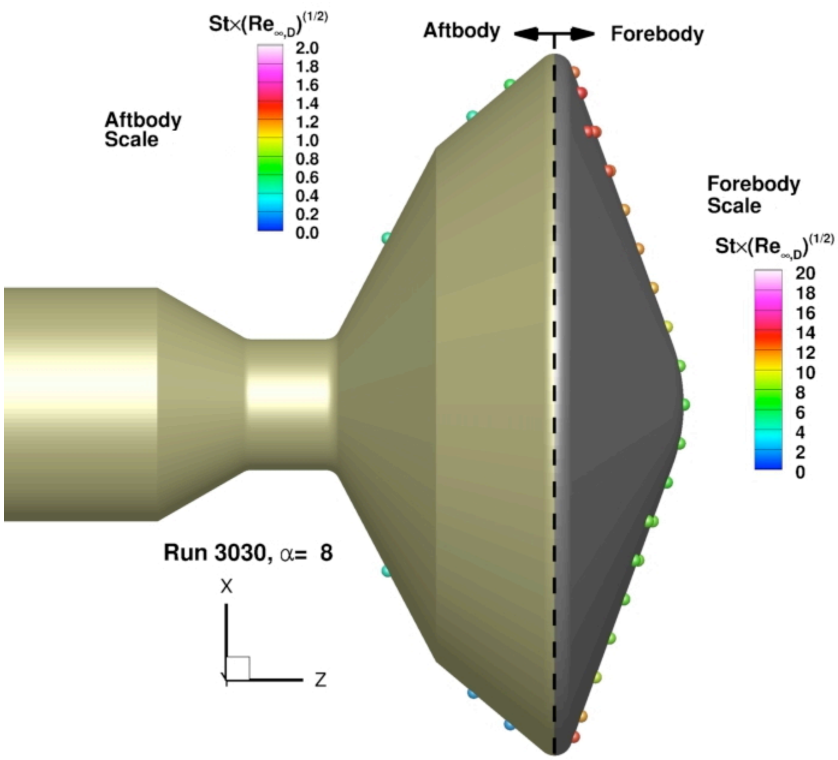
a) **Forebody**

b) **Aftbody**

Figure B - 64. Run 3030 heating data, Mach 8 nozzle, $Re_\infty = 21.5\times10^6$/ft, α = 4°.

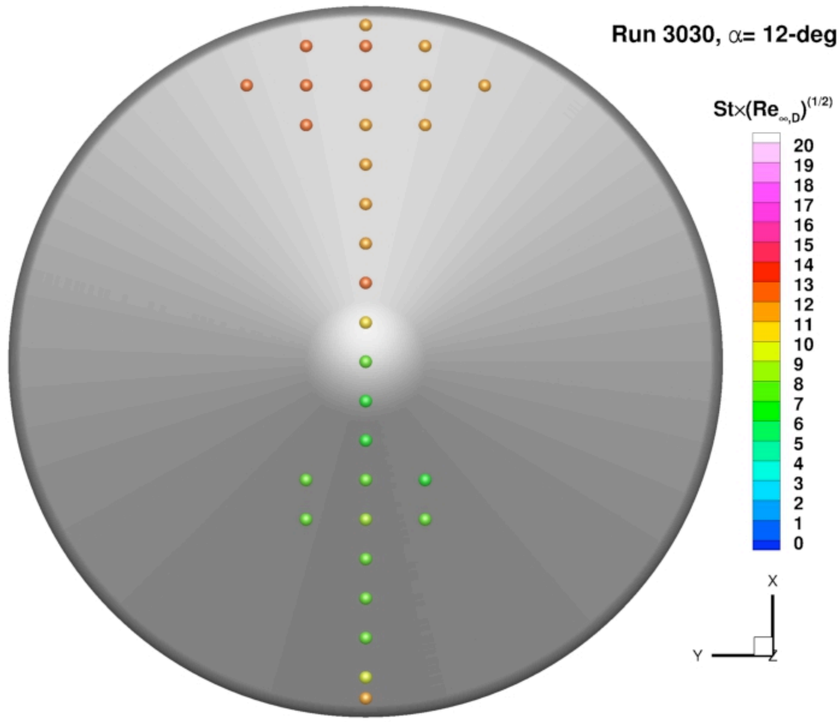


a) **Forebody**

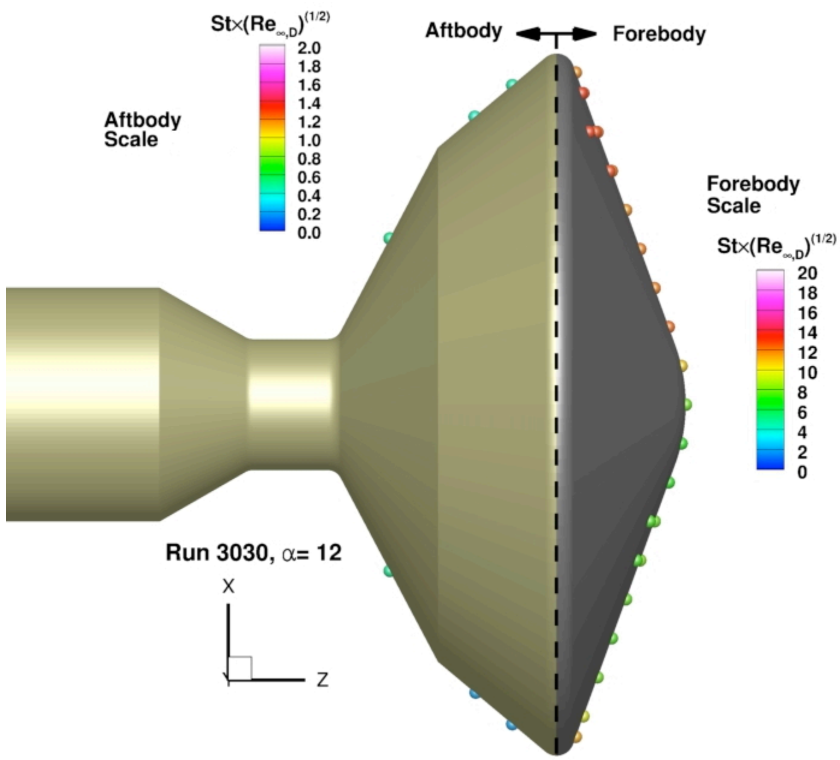


b) **Aftbody**

Figure B - 65. Run 3030 heating data, Mach 8 nozzle, $Re_\infty = 21.5 \times 10^6$/ft, α = 8°.

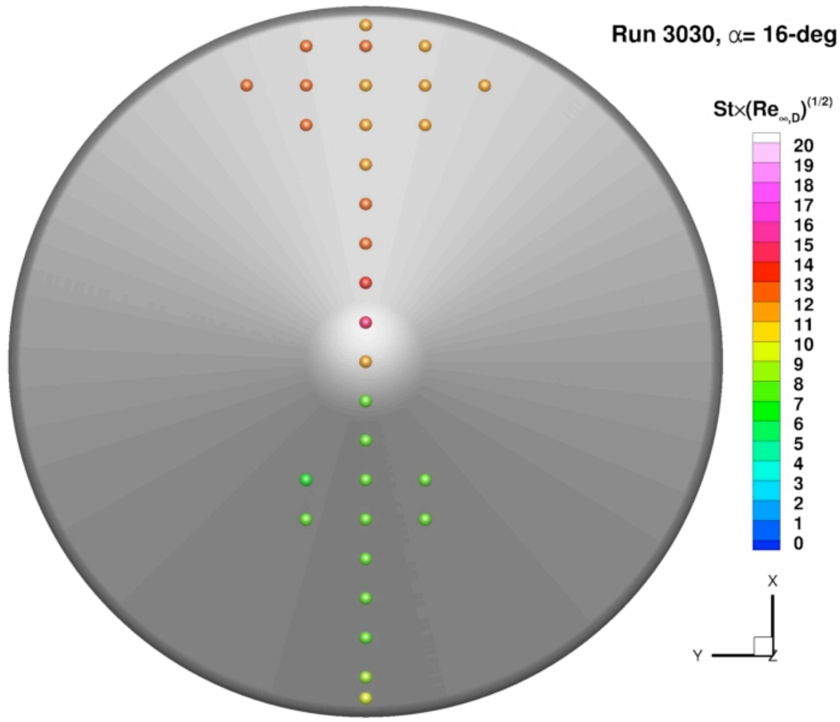


a) **Forebody**

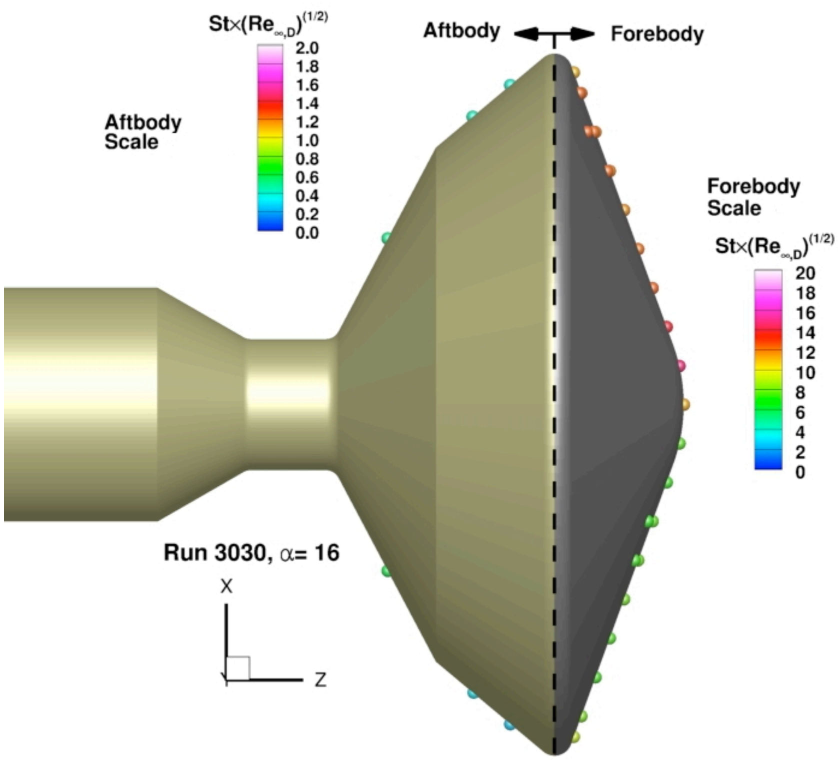


b) **Aftbody**

Figure B - 66. Run 3030 heating data, Mach 8 nozzle, $Re_\infty = 21.5\times10^6$/ft, α = 12°.

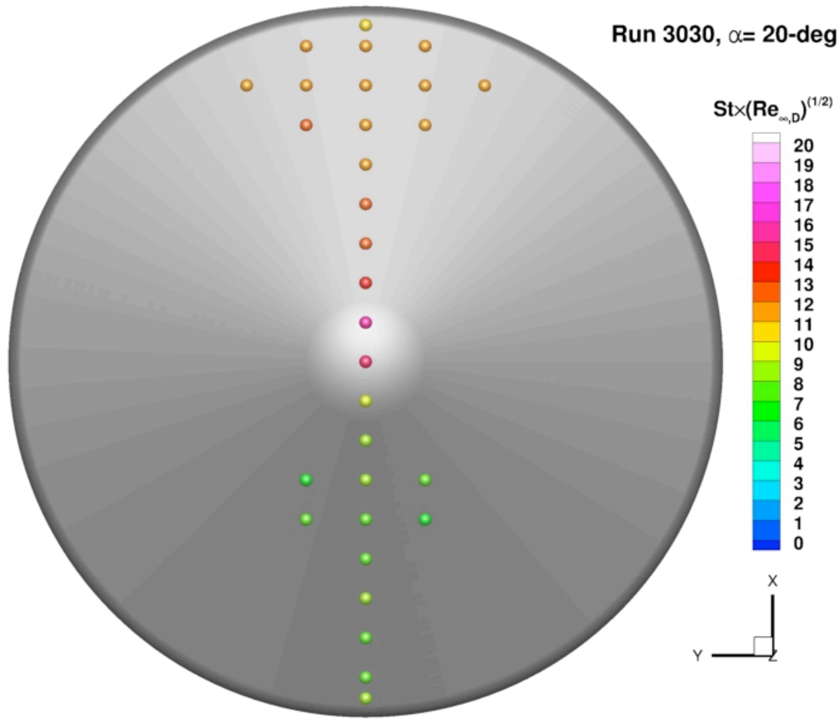


a) **Forebody**

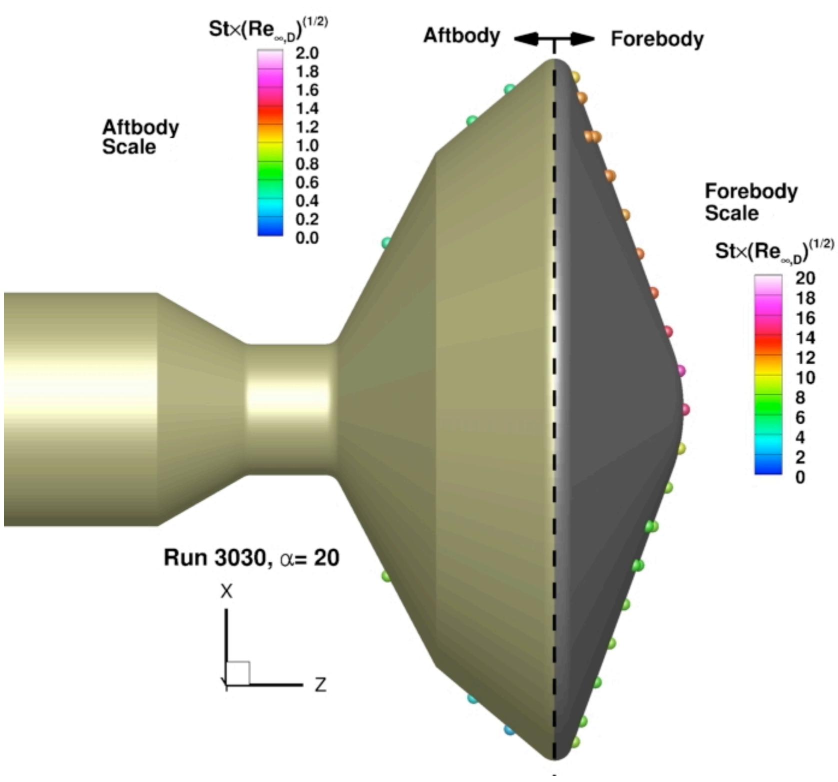


b) **Aftbody**

Figure B - 67. Run 3030 heating data, Mach 8 nozzle, $Re_\infty = 21.5\times10^6$/ft, α = 16°.

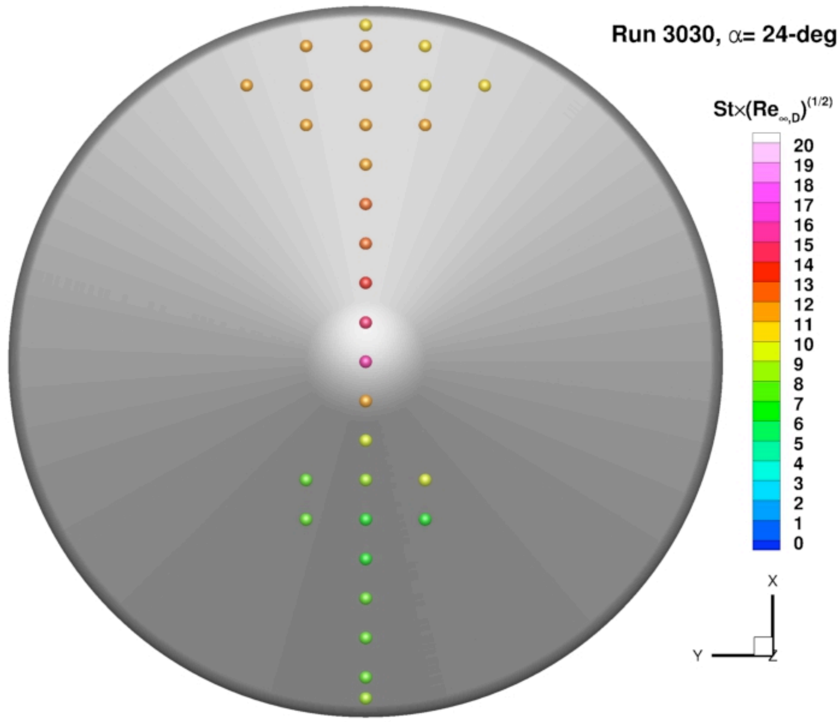


a) **Forebody**

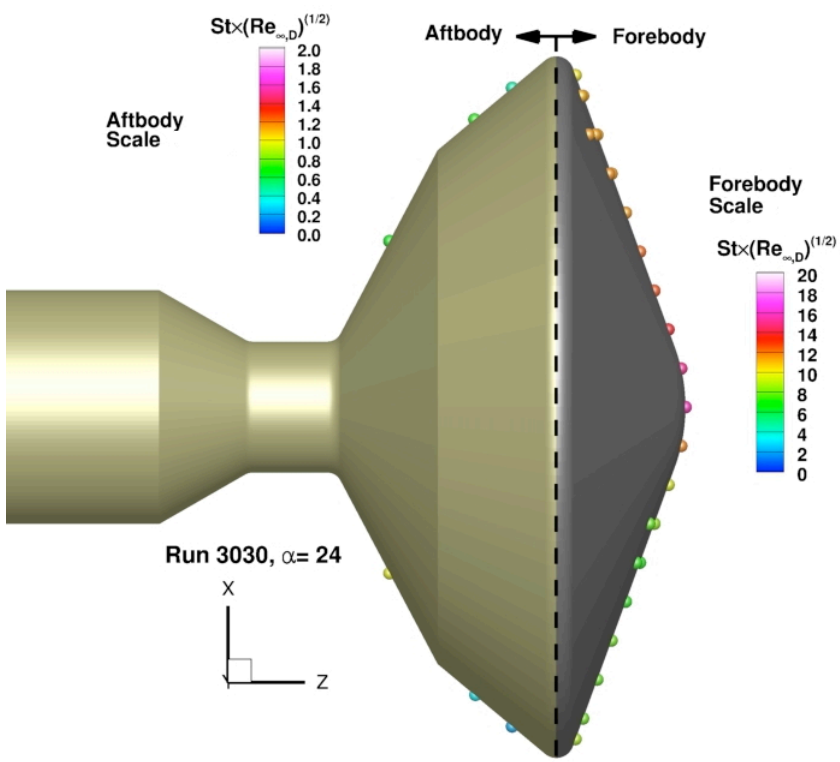


b) **Aftbody**

Figure B - 68. Run 3030 heating data, Mach 8 nozzle, $Re_\infty = 21.5\times10^6$/ft, α = 20°.

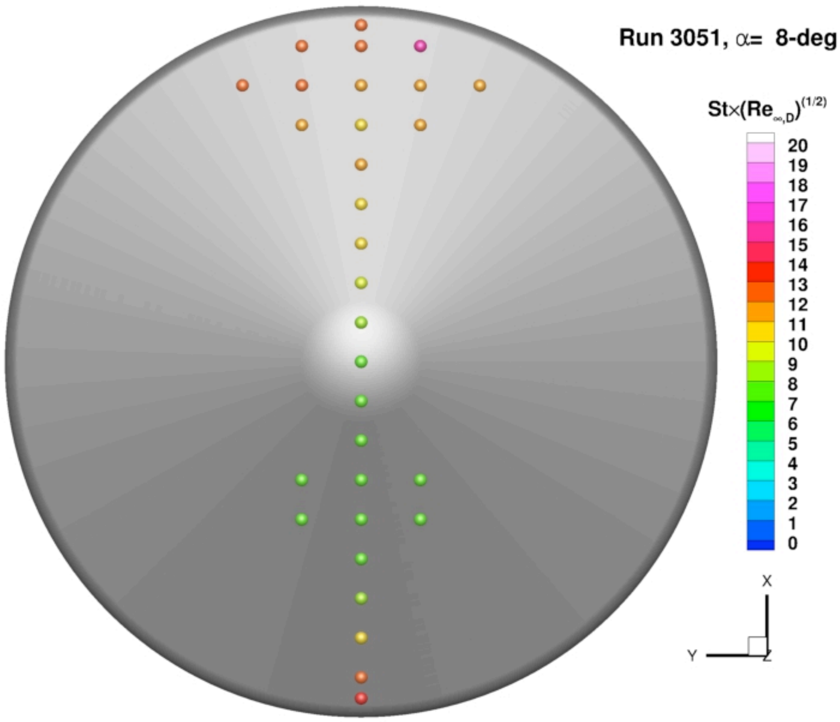


a) **Forebody**

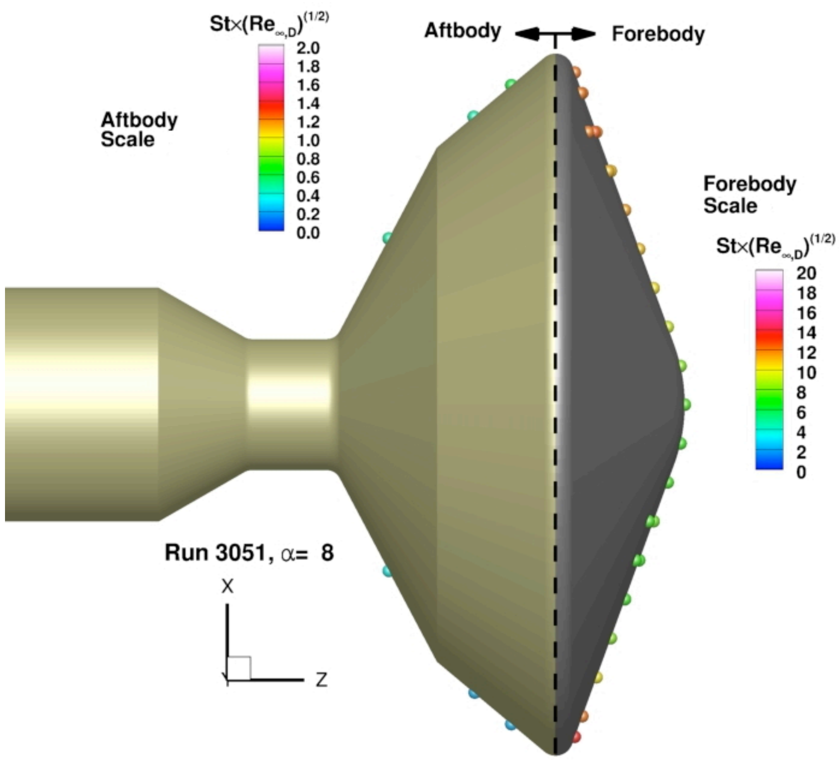


b) **Aftbody**

Figure B - 69. Run 3030 heating data, Mach 8 nozzle, $Re_\infty = 21.5 \times 10^6$/ft, $\alpha = 24°$.

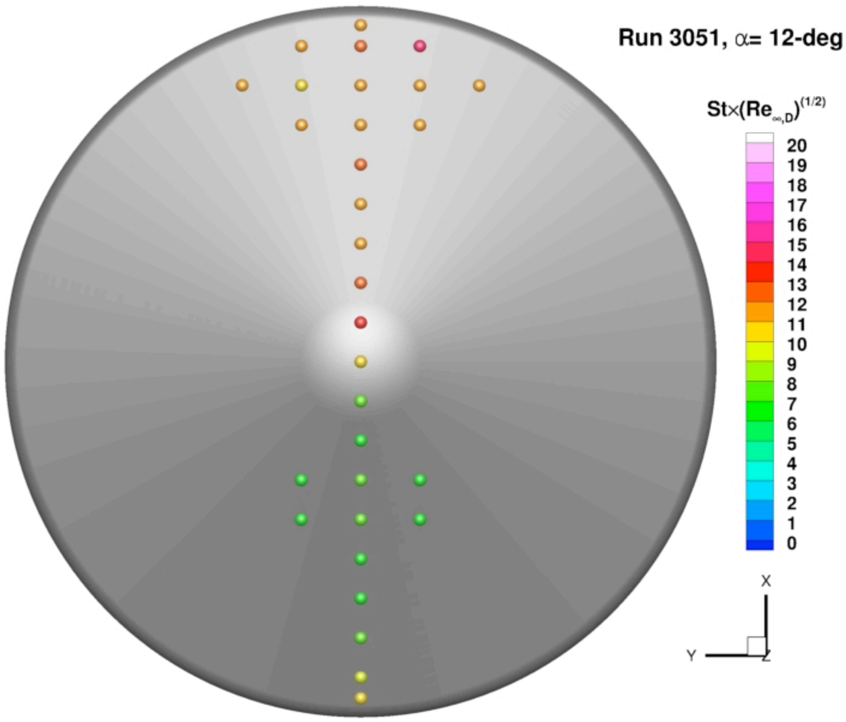


a) **Forebody**

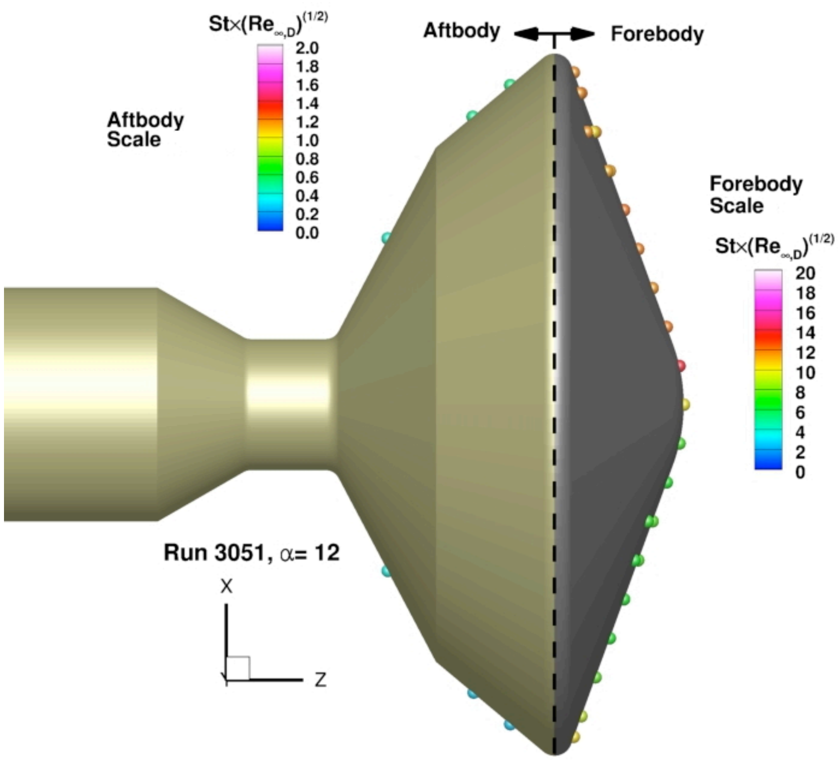


b) **Aftbody**

Figure B - 70. Run 3051 heating data, Mach 8 nozzle, $Re_\infty = 21.8\times10^6$/ft, α = 8°.

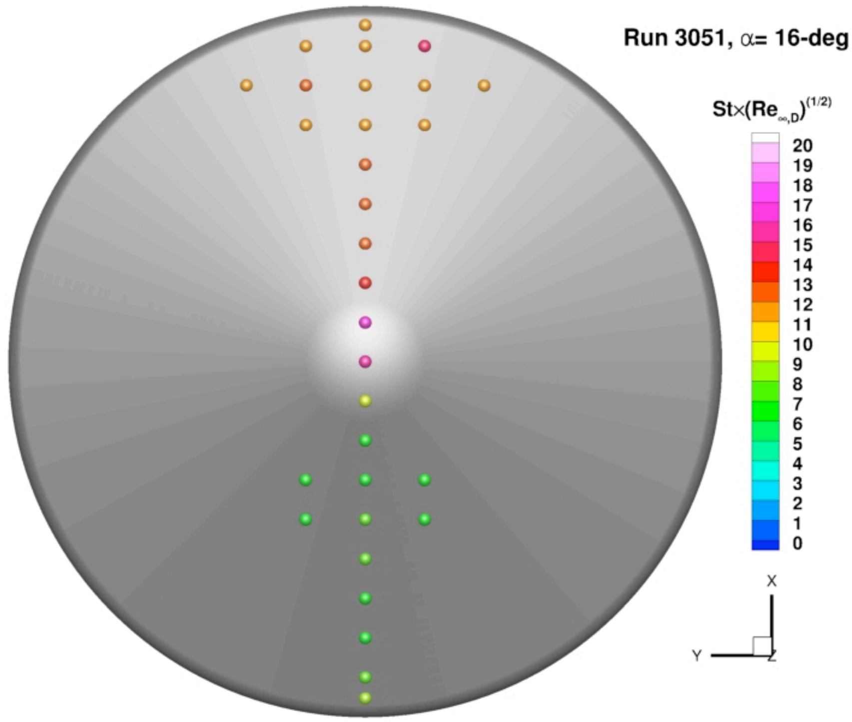


a) **Forebody**

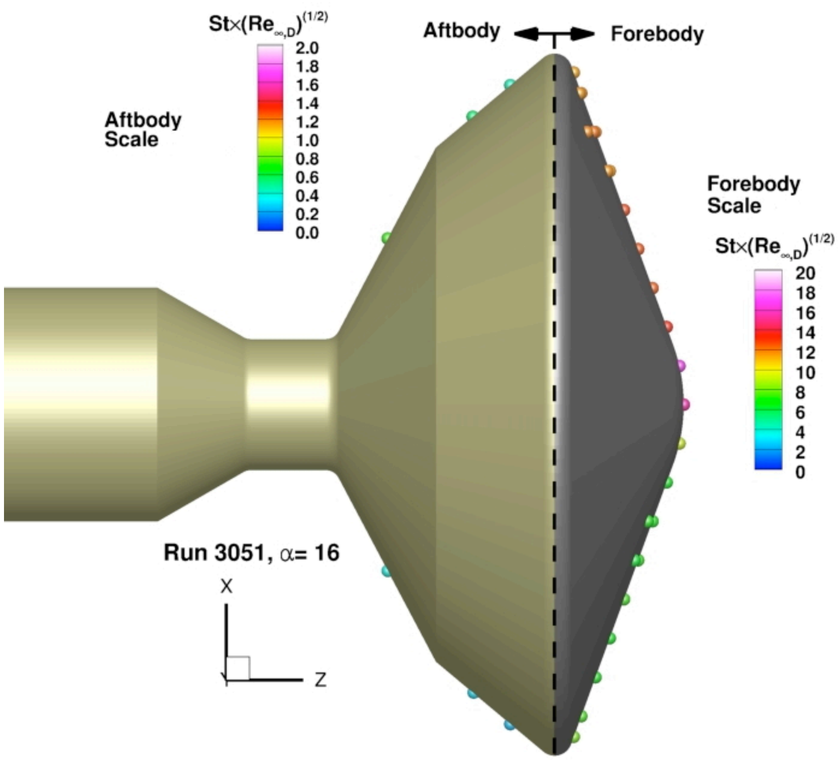


Aftbody

Figure B - 71. Run 3051 heating data, Mach 8 nozzle, $Re_\infty = 21.8\times10^6$/ft, α = 12°.

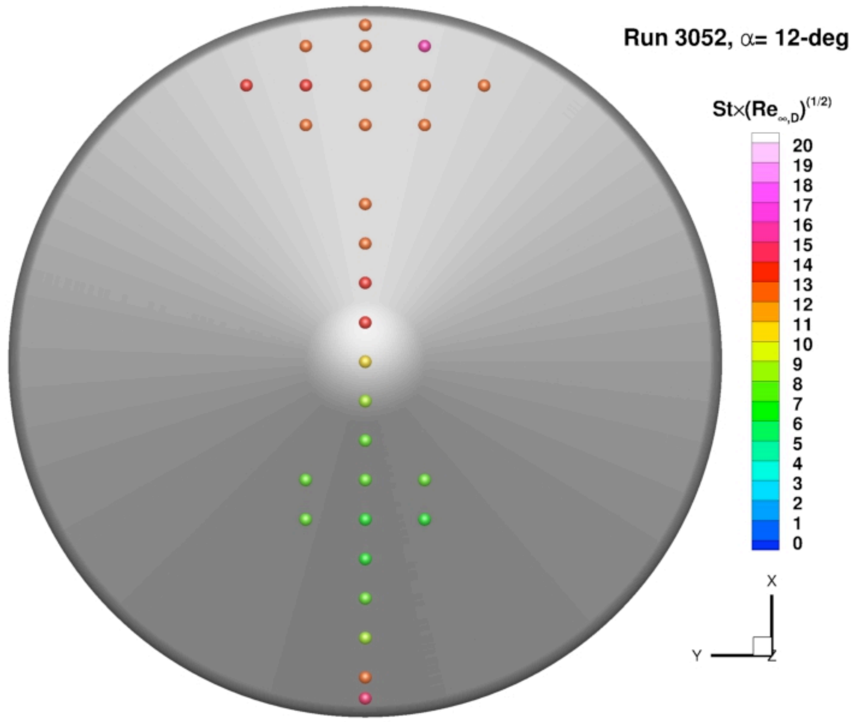


a) **Forebody**

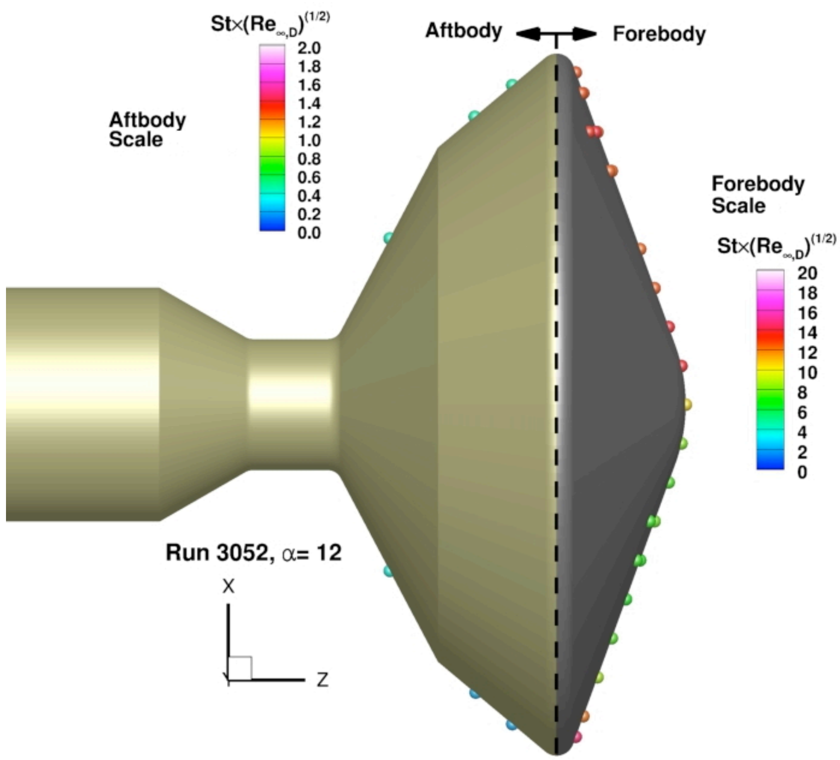


b) **Aftbody**

Figure B - 72. Run 3051 heating data, Mach 8 nozzle, $Re_\infty = 21.8\times10^6$/ft, α = 16°.

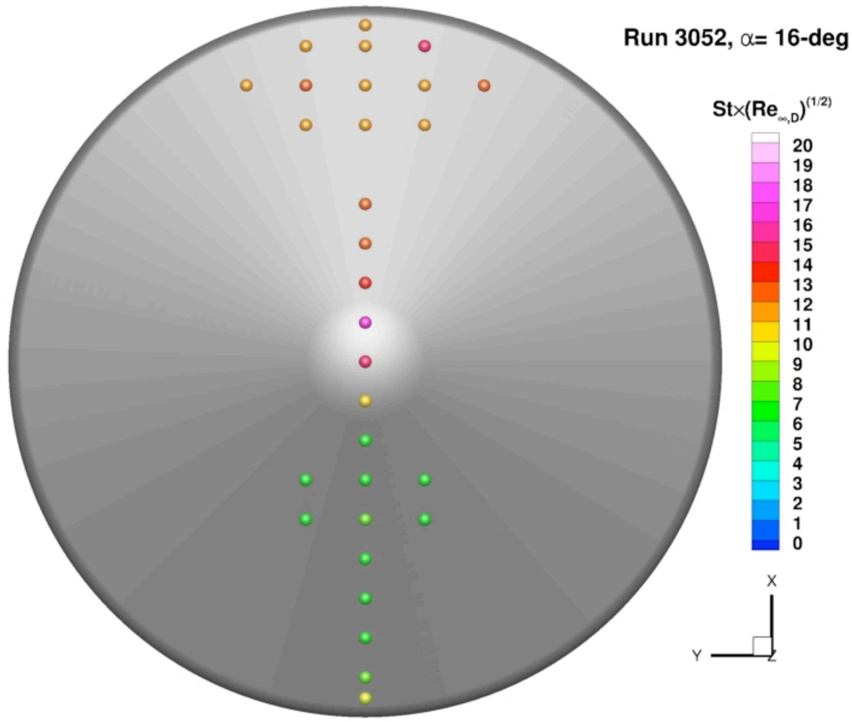


a) **Forebody**

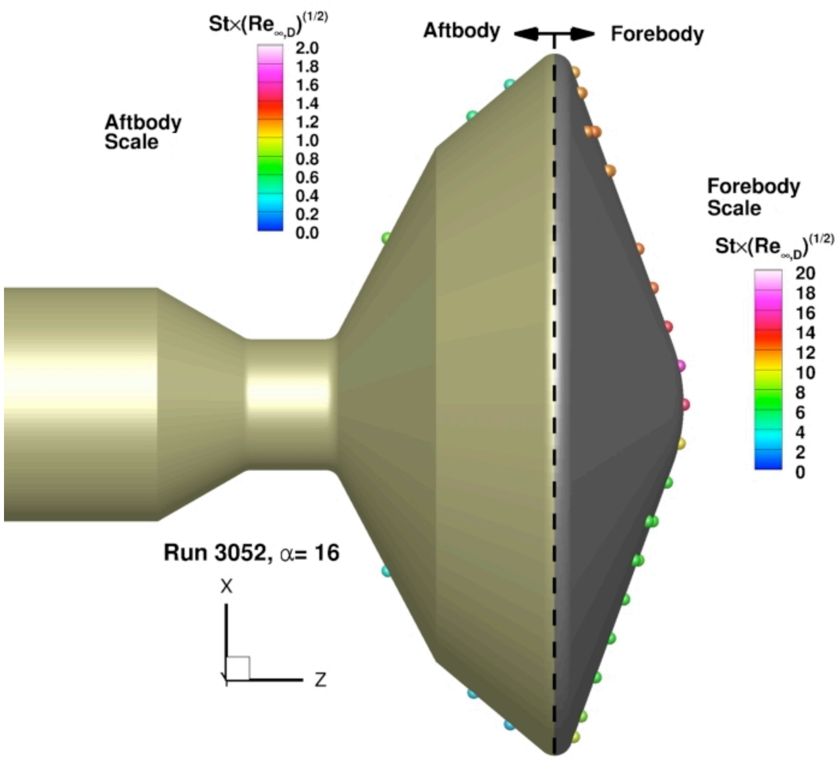


b) **Aftbody**

Figure B - 73. Run 3052 heating data, Mach 8 nozzle, $Re_\infty = 21.9{\times}10^6$/ft, α = 12°.

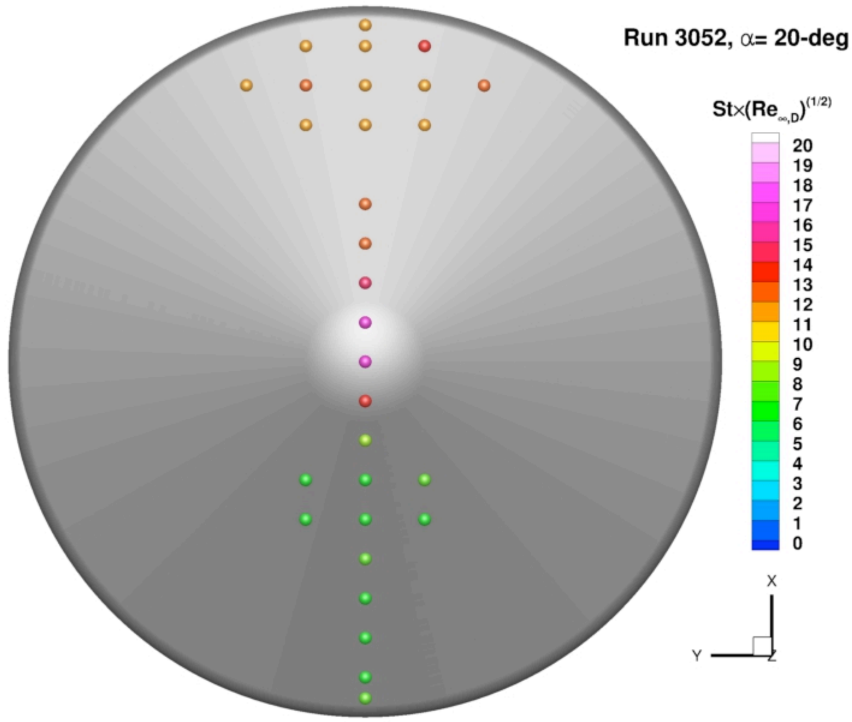


a) **Forebody**

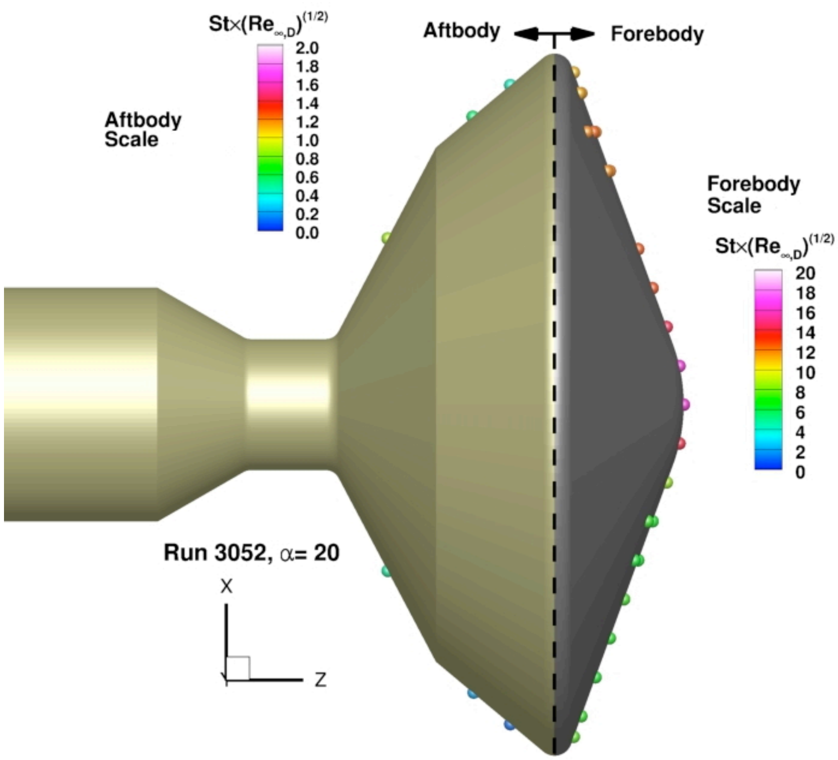


b) **Aftbody**

Figure B - 74. Run 3052 heating data, Mach 8 nozzle, $Re_\infty = 21.9\times10^6$/ft, α = 16°.

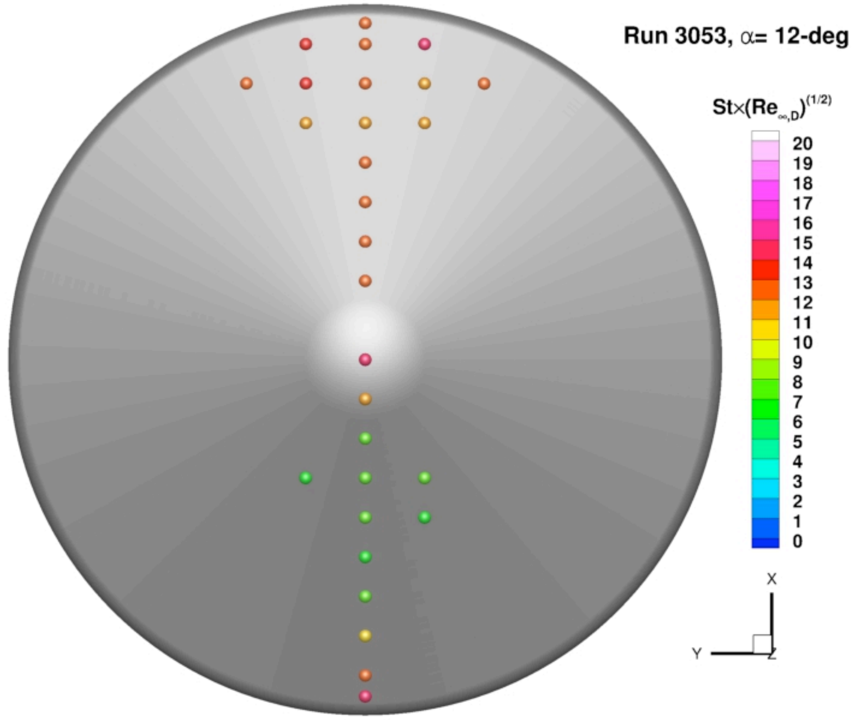


a) **Forebody**

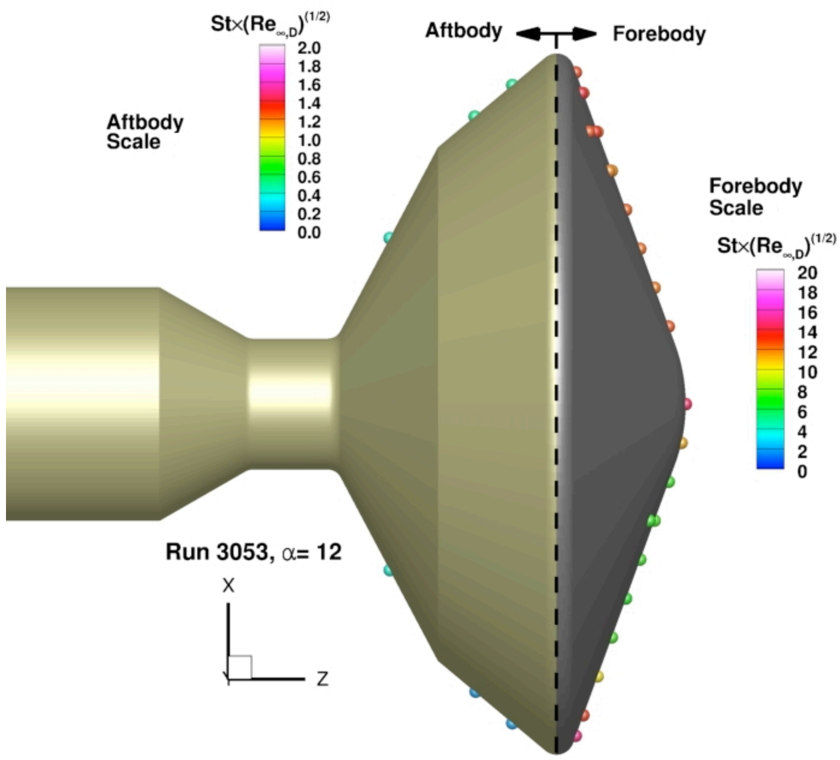


b) **Aftbody**

Figure B - 75. Run 3052 heating data, Mach 8 nozzle, $Re_\infty = 21.9\times10^6$/ft, α = 20°.

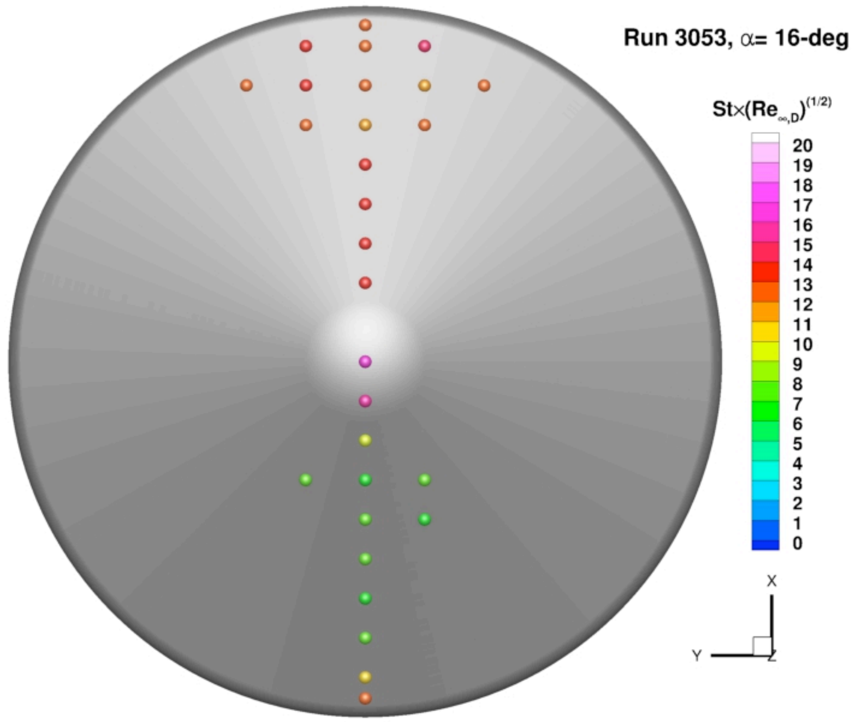


a) **Forebody**

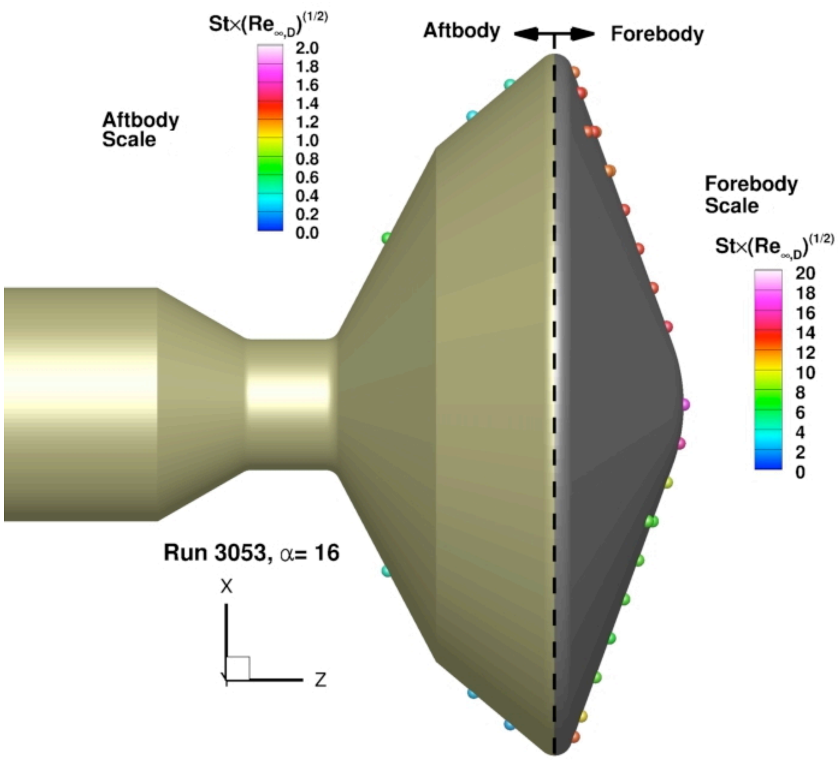


b) **Aftbody**

Figure B - 76. Run 3053 heating data, Mach 8 nozzle, $Re_\infty = 30.2\times10^6$/ft, α = 12°.

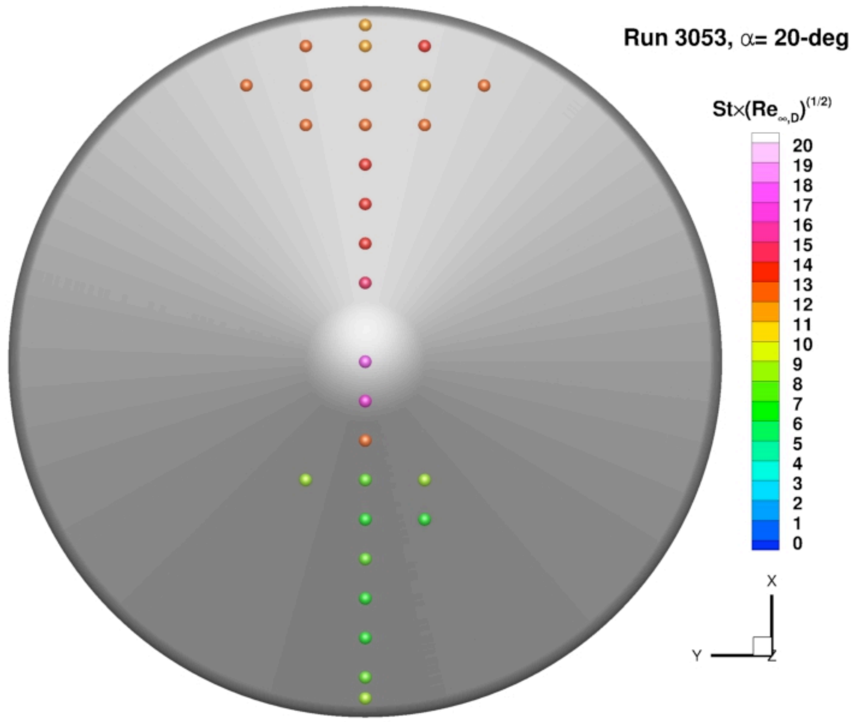


a) **Forebody**

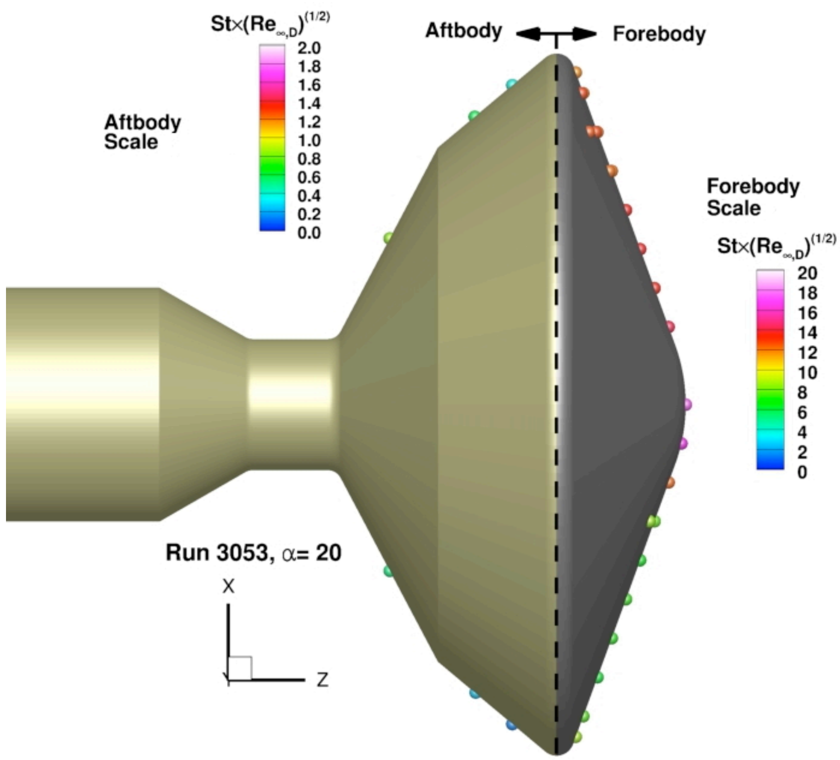


b) **Aftbody**

Figure B - 77. Run 3053 heating data, Mach 8 nozzle, $Re_\infty = 30.2\times10^6$/ft, α = 16°.

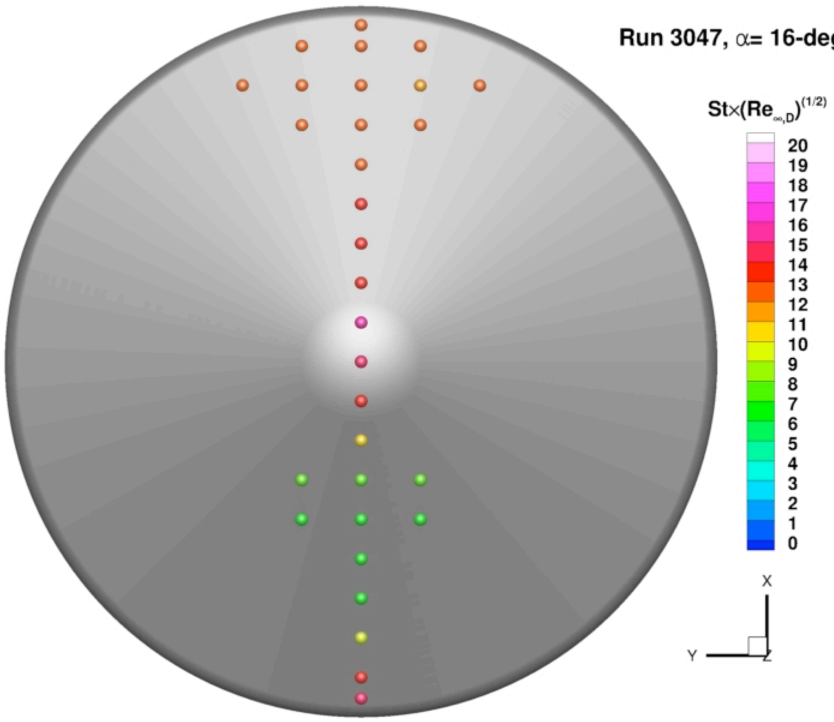


a) **Forebody**

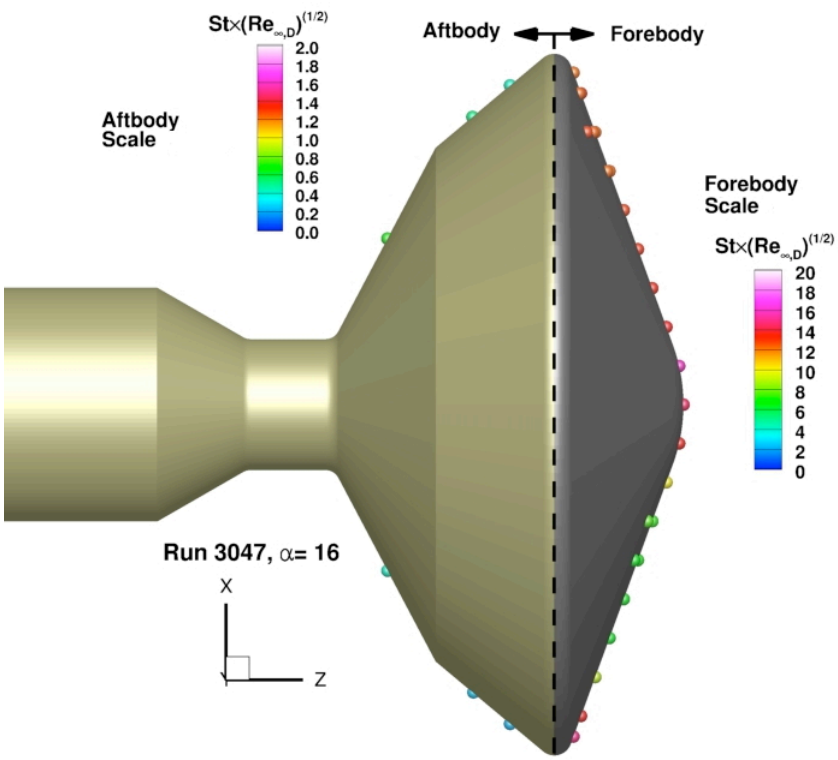


b) **Aftbody**

Figure B - 78. Run 3053 heating data, Mach 8 nozzle, $Re_\infty = 30.2\times10^6$/ft, α = 20°.

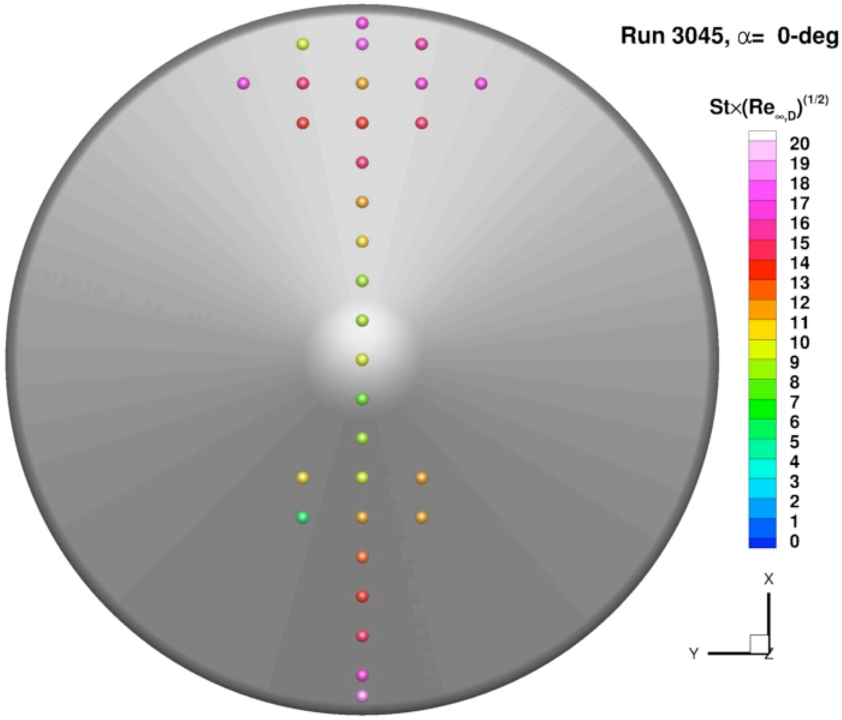


a) **Forebody**

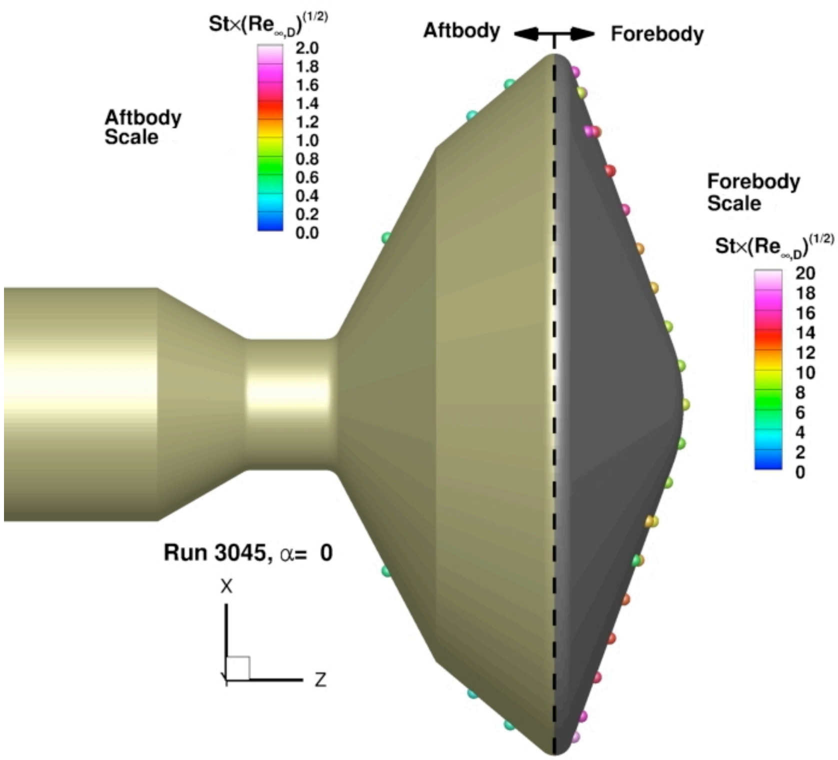


b) **Aftbody**

Figure B - 79. Run 3047 heating data, Mach 8 nozzle, $Re_\infty = 30.6 \times 10^6$/ft, $\alpha = 16°$.

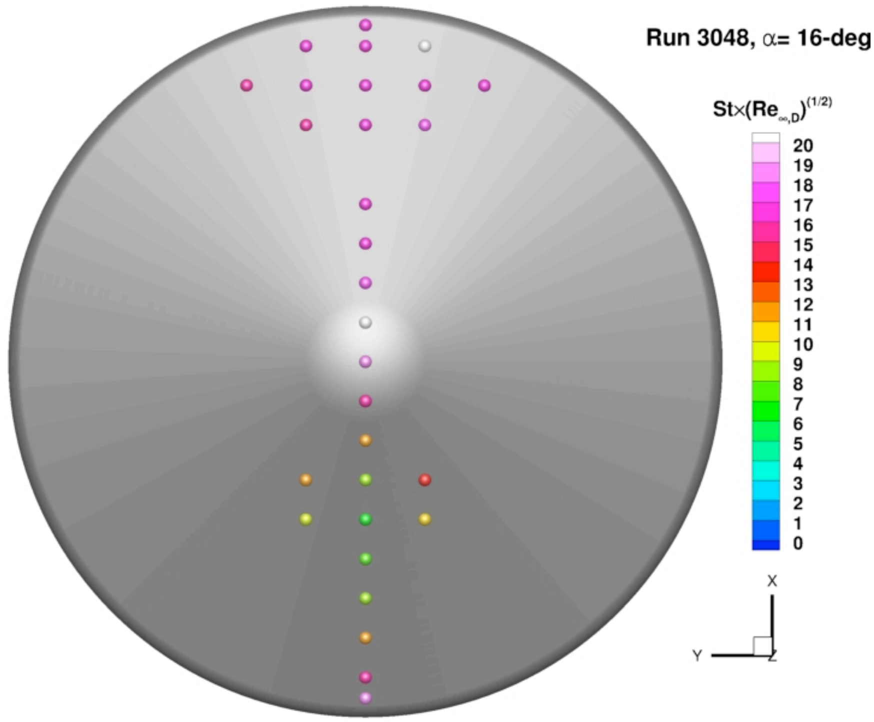


a) **Forebody**

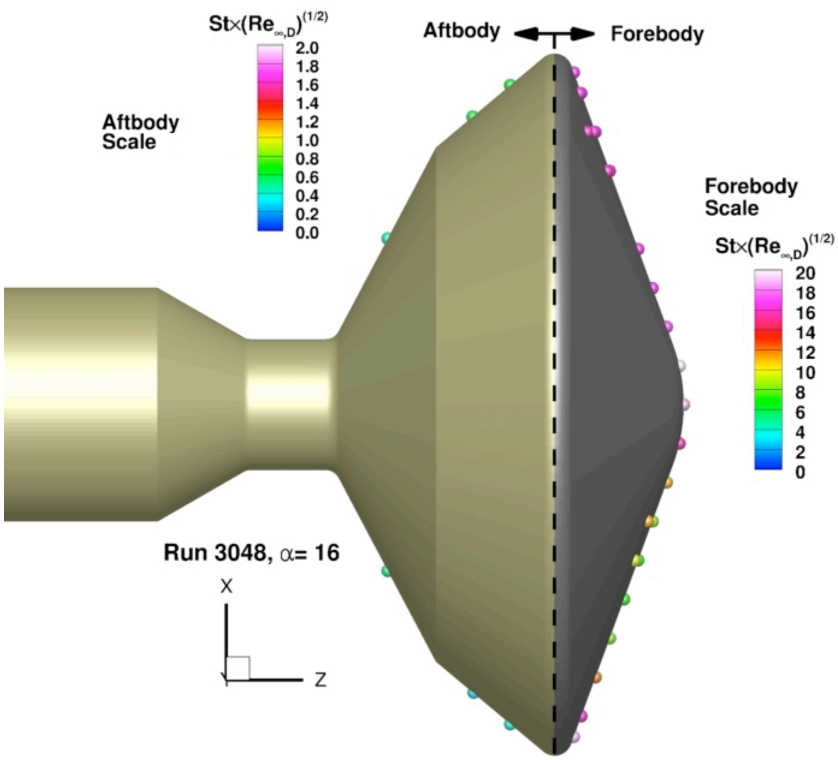


b) **Aftbody**

Figure B - 80. Run 3045 heating data, Mach 8 nozzle, $Re_\infty = 45.0\times10^6$/ft, α = 0°.

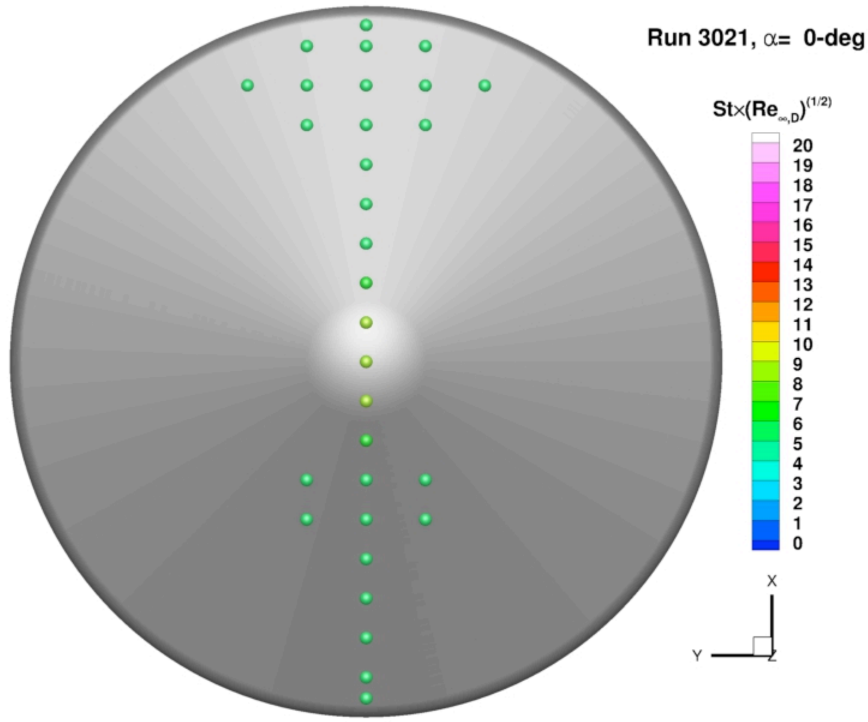


a) **Forebody**

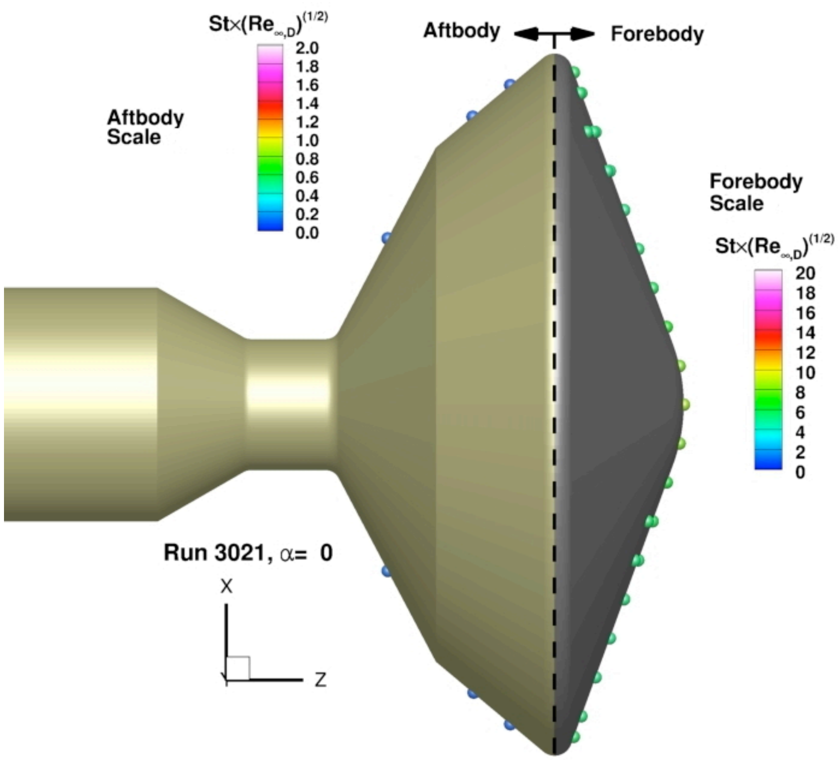


b) **Aftbody**

Figure B - 81. Run 3048 heating data, Mach 8 nozzle, $Re_\infty = 49.3\times10^6$/ft, α = 16°.

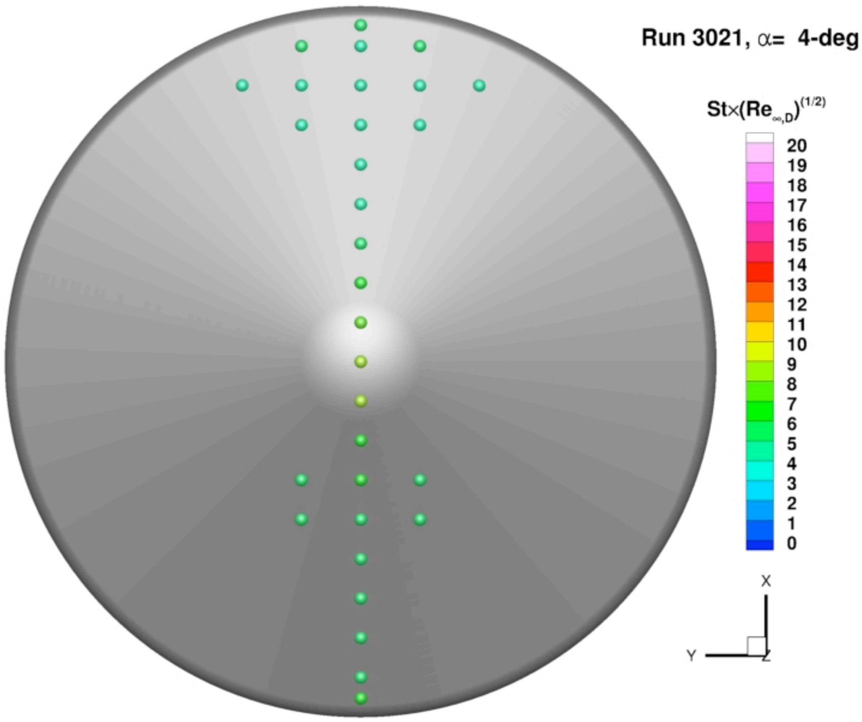


a) **Forebody**

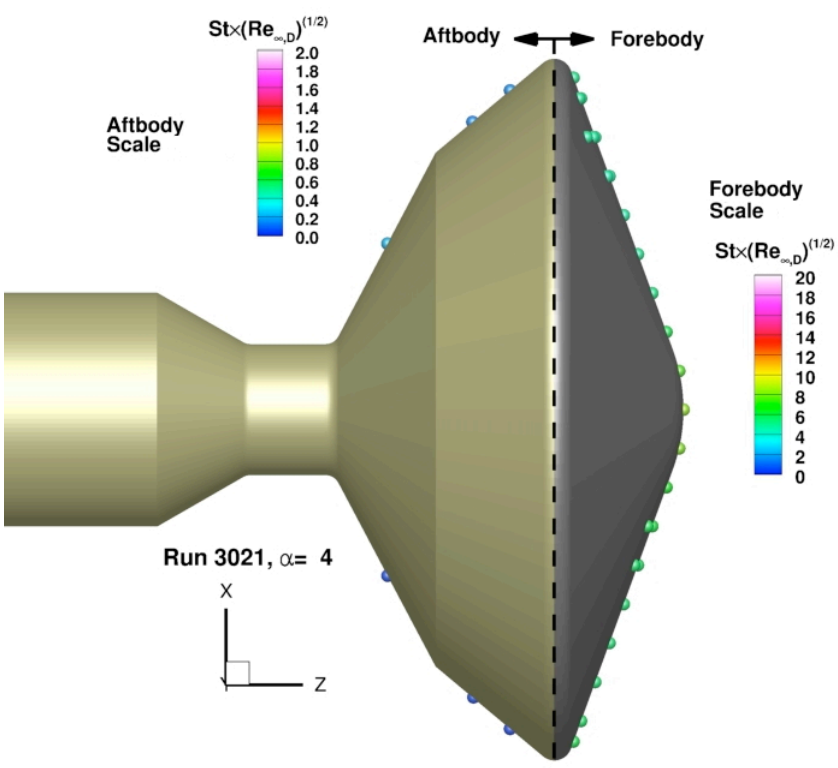


b) **Aftbody**

Figure B - 82. Run 3021 heating data, Mach 10 nozzle, $Re_{\infty} = 1.2\times10^{6}$/ft, $\alpha = 0°$.

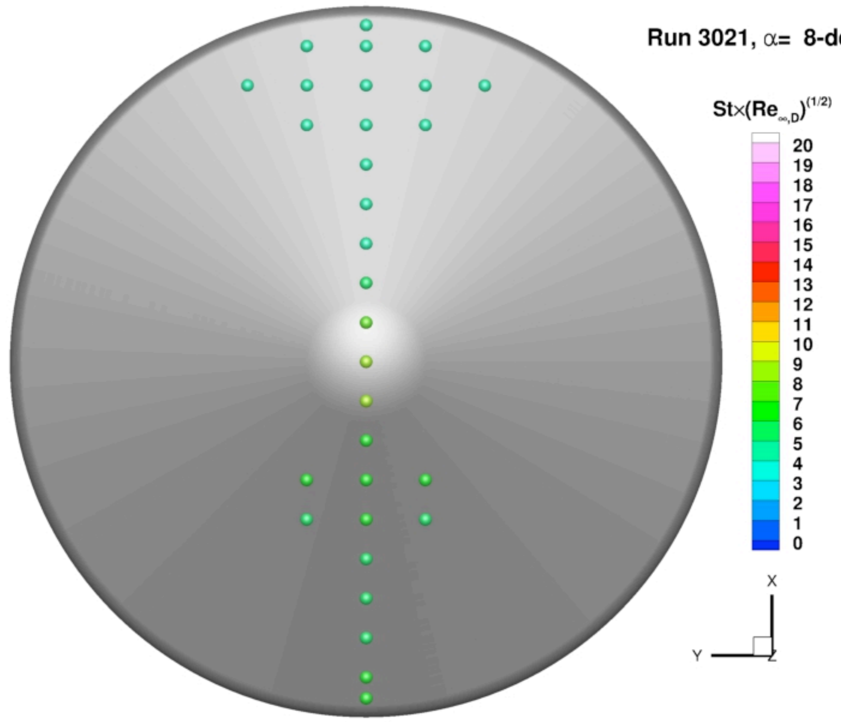


a) **Forebody**

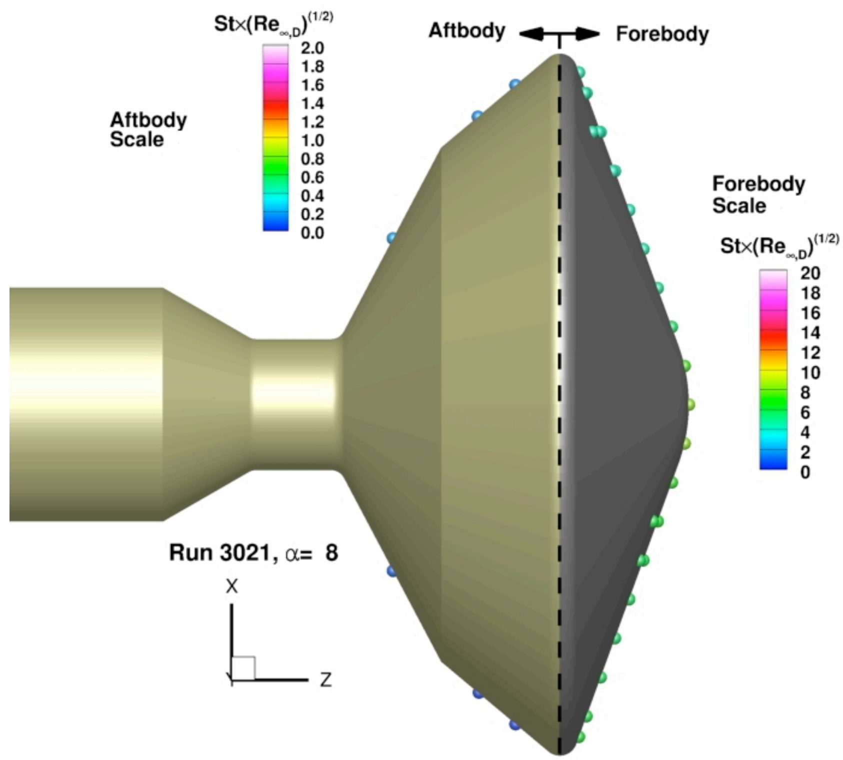


b) **Aftbody**

Figure B - 83. Run 3021 heating data, Mach 10 nozzle, $Re_\infty = 1.2\times10^6$/ft, α = 4°.

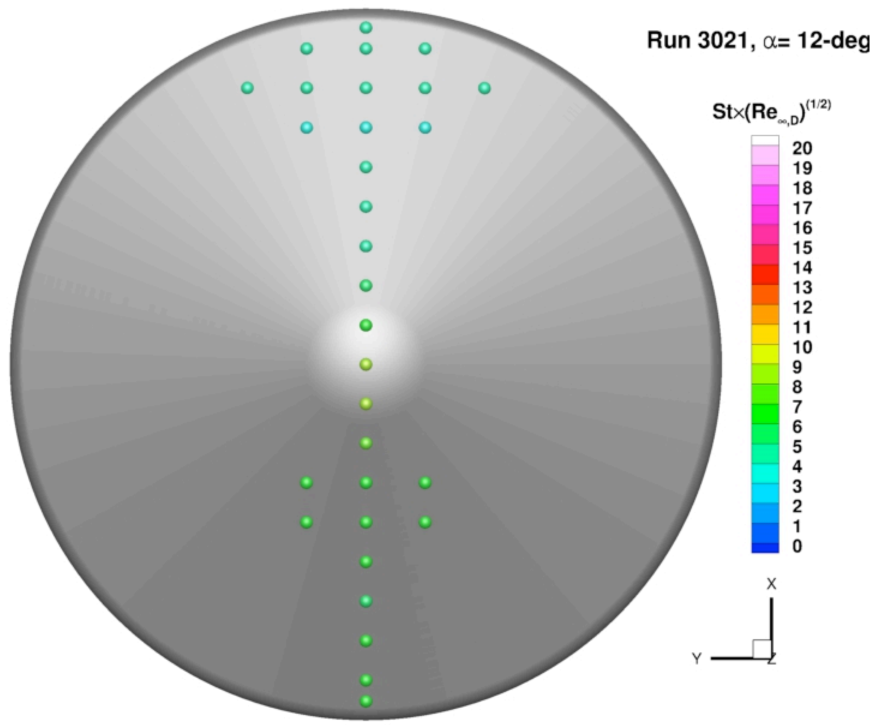


a) **Forebody**

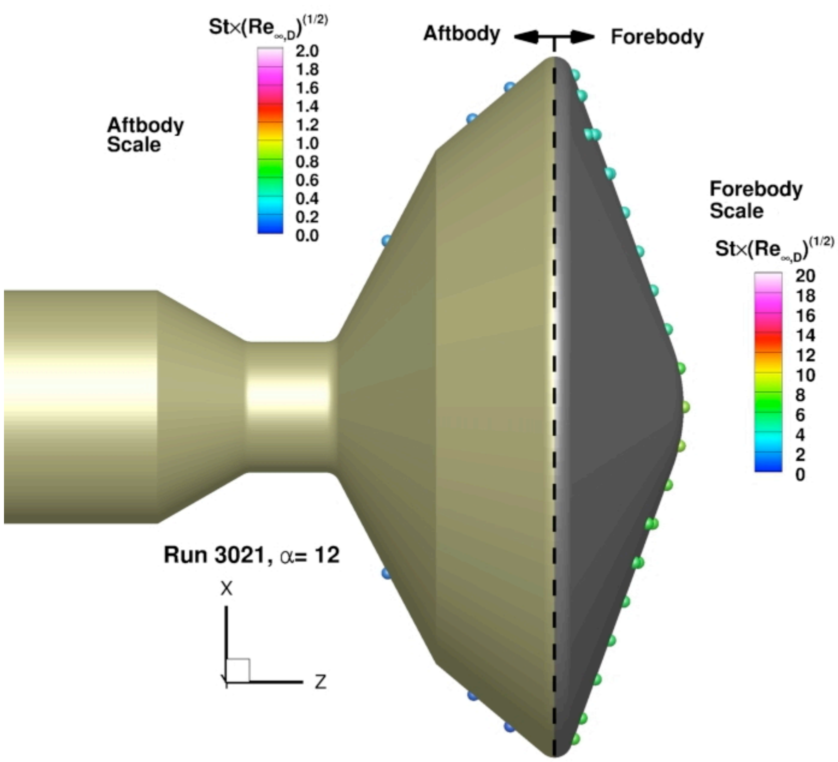


b) **Aftbody**

Figure B - 84. Run 3021 heating data, Mach 10 nozzle, $Re_\infty = 1.2 \times 10^6$/ft, $\alpha = 8°$.

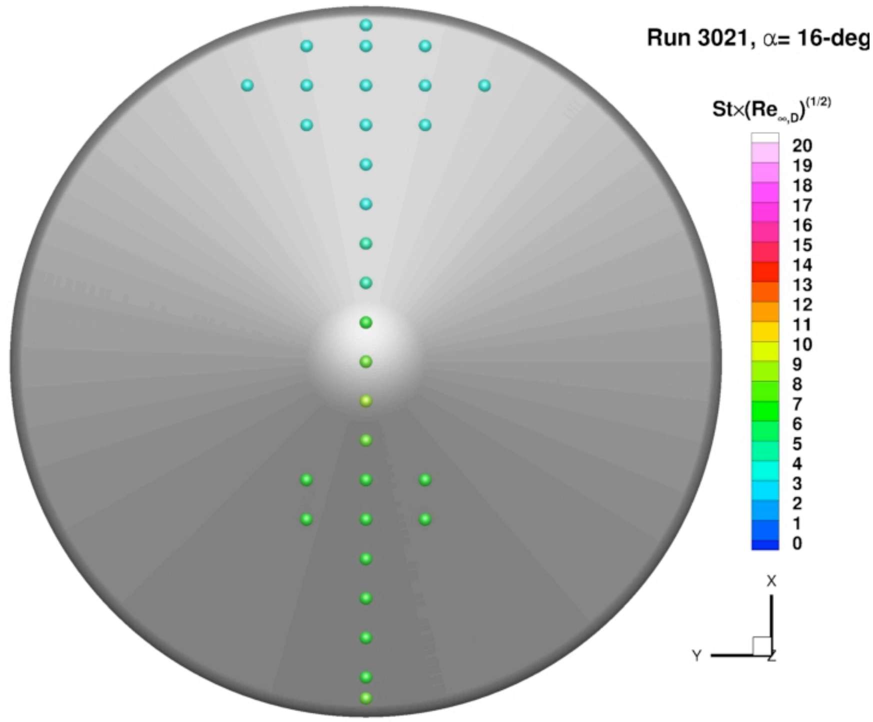


a) **Forebody**

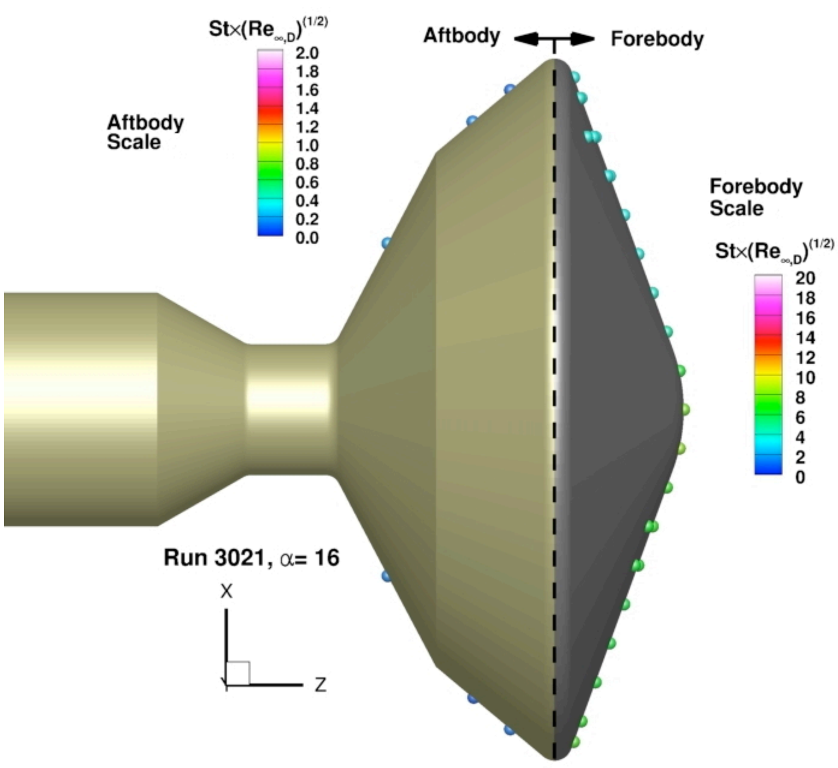


b) **Aftbody**

Figure B - 85. Run 3021 heating data, Mach 10 nozzle, $Re_\infty = 1.2{\times}10^6$/ft, α = 12°.

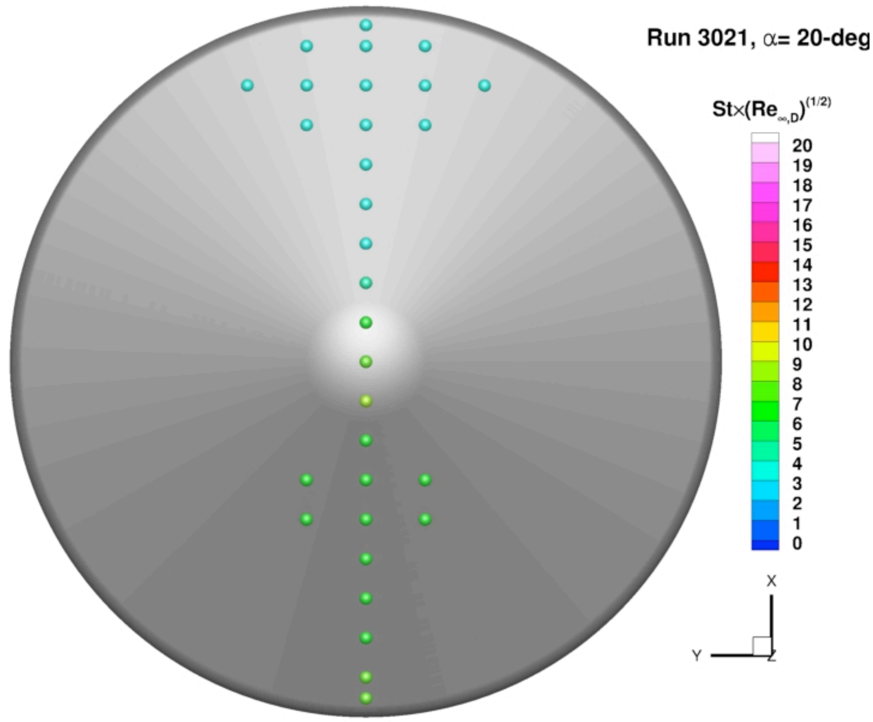


a) **Forebody**

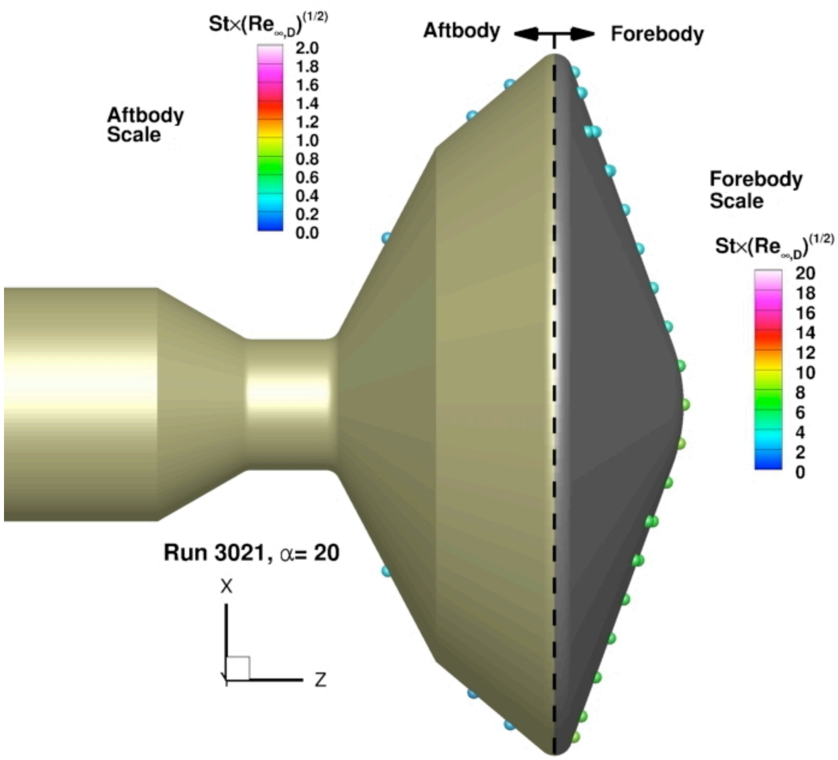


b) **Aftbody**

Figure B - 86. Run 3021 heating data, Mach 10 nozzle, $Re_\infty = 1.2\times10^6$/ft, α = 16°.

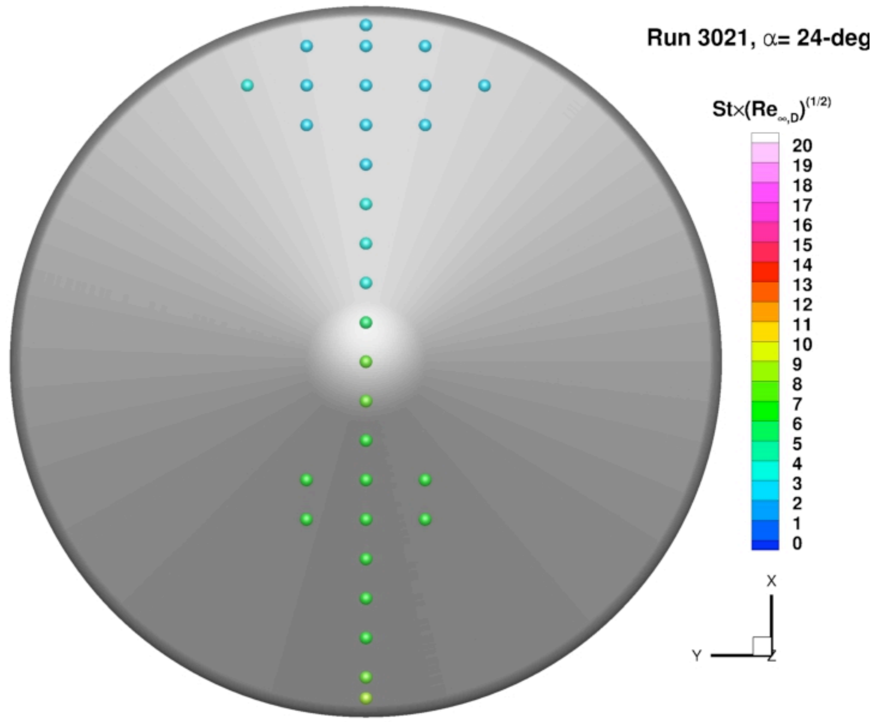


a) **Forebody**

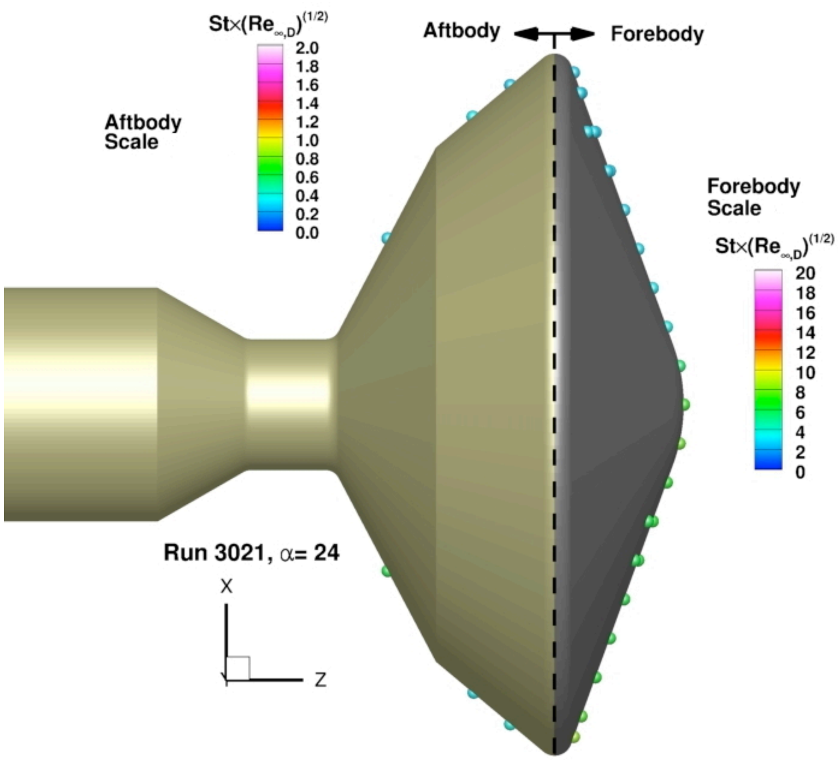


b) **Aftbody**

Figure B - 87. Run 3021 heating data, Mach 10 nozzle, Re$_\infty$ = 1.2×10^6/ft, α = 20°.

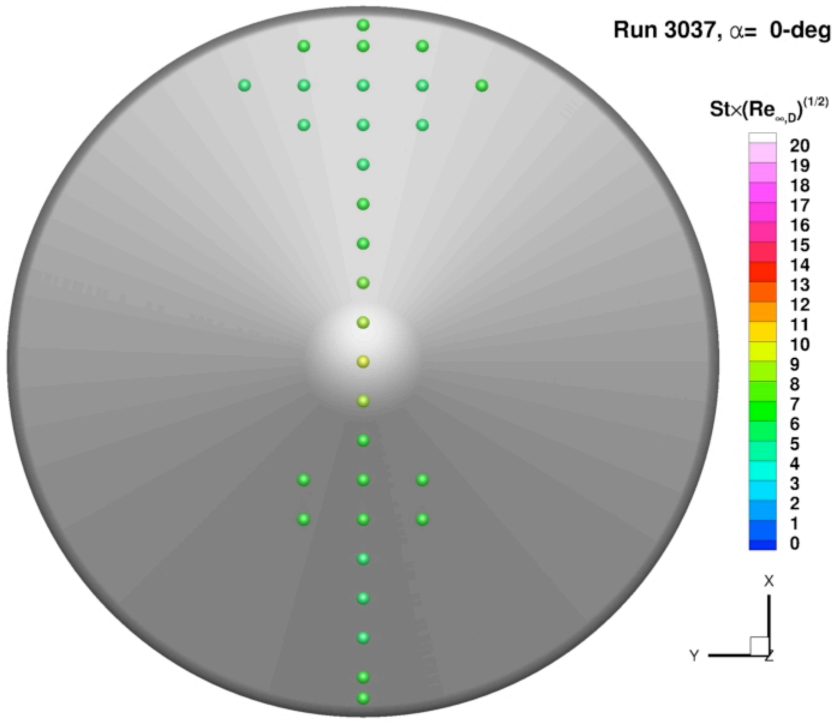


a) **Forebody**

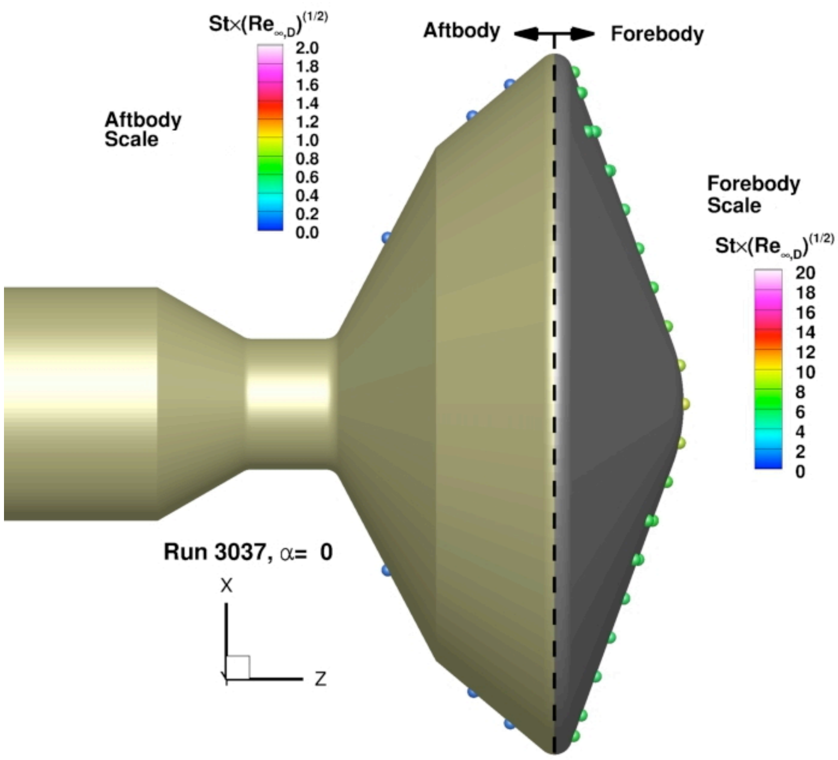


b) **Aftbody**

Figure B - 88. Run 3021 heating data, Mach 10 nozzle, $Re_\infty = 1.2\times10^6$/ft, α = 24°.

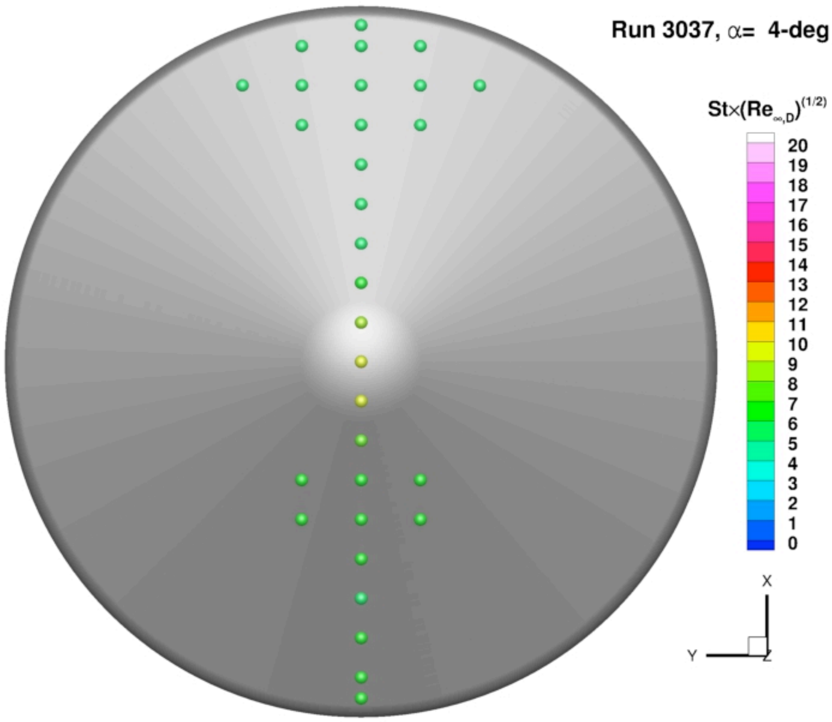


a) **Forebody**

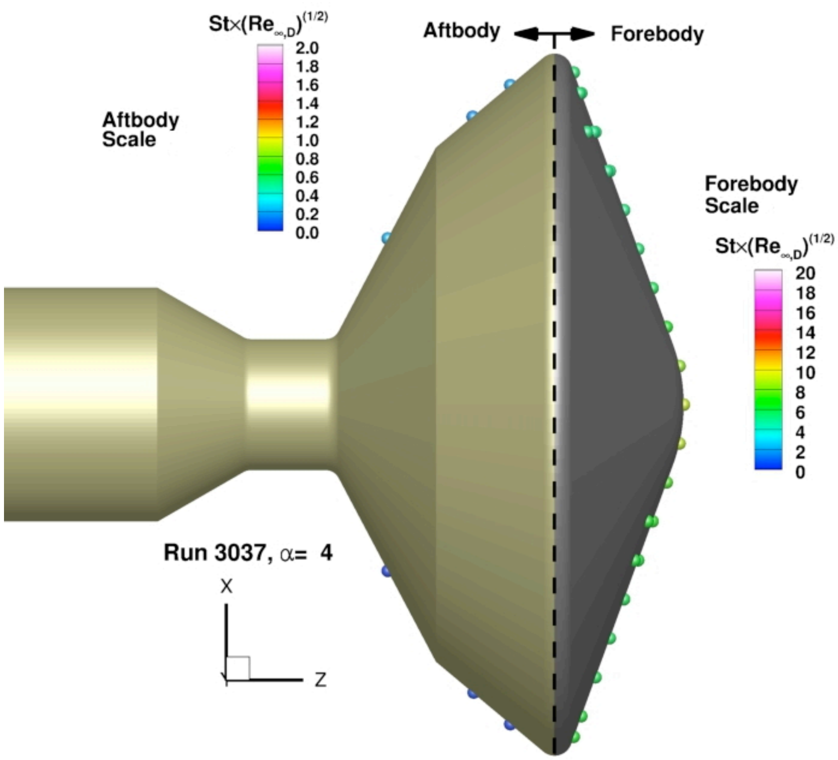


b) **Aftbody**

Figure B - 89. Run 3037 heating data, Mach 10 nozzle, $Re_\infty = 1.3\times10^6$/ft, $\alpha = 0°$.

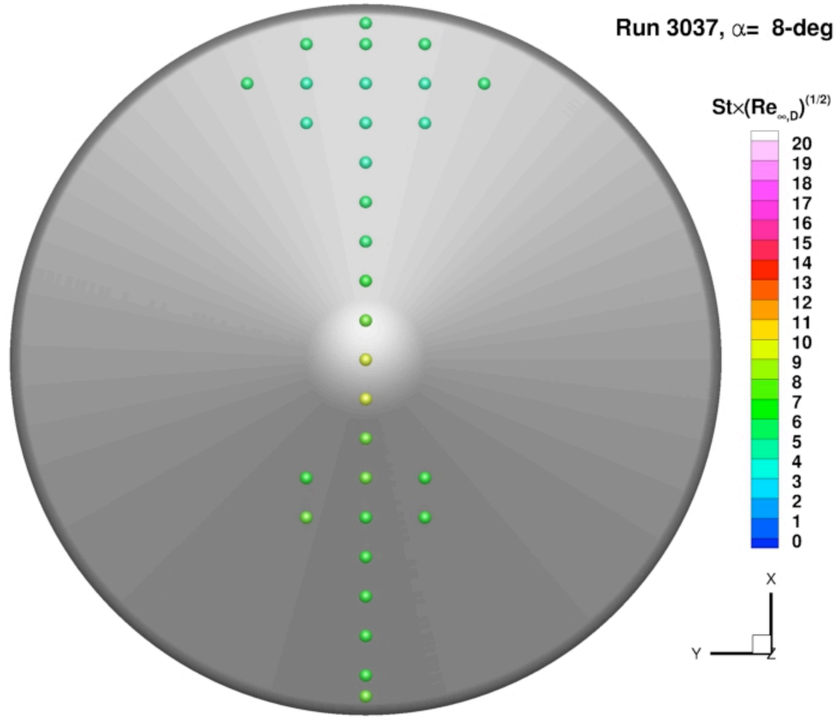


a) **Forebody**

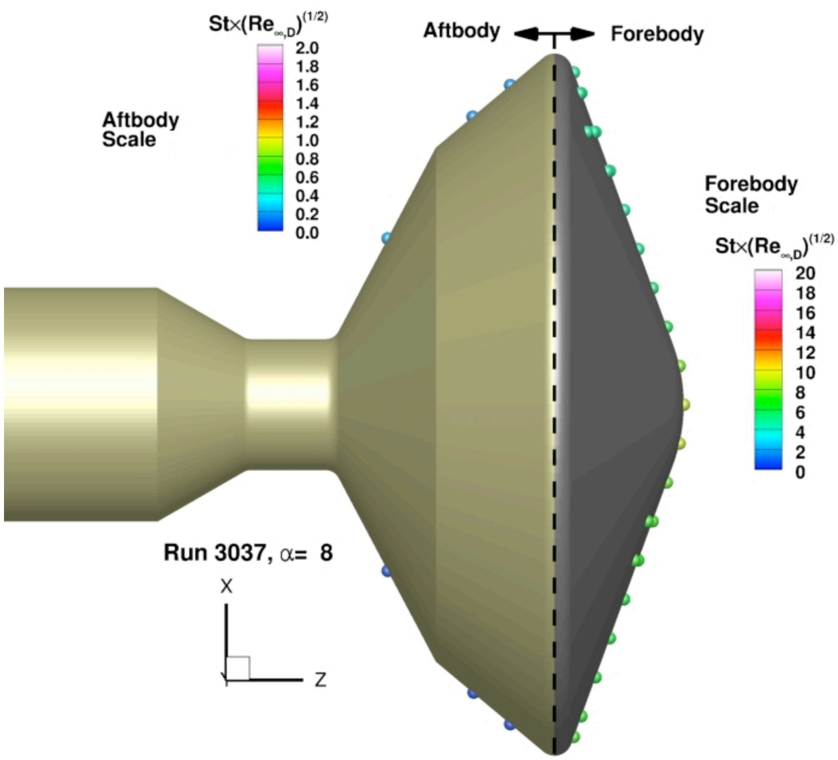


b) **Aftbody**

Figure B - 90. Run 3037 heating data, Mach 10 nozzle, $Re_\infty = 1.3\times10^6$/ft, $\alpha = 4°$.

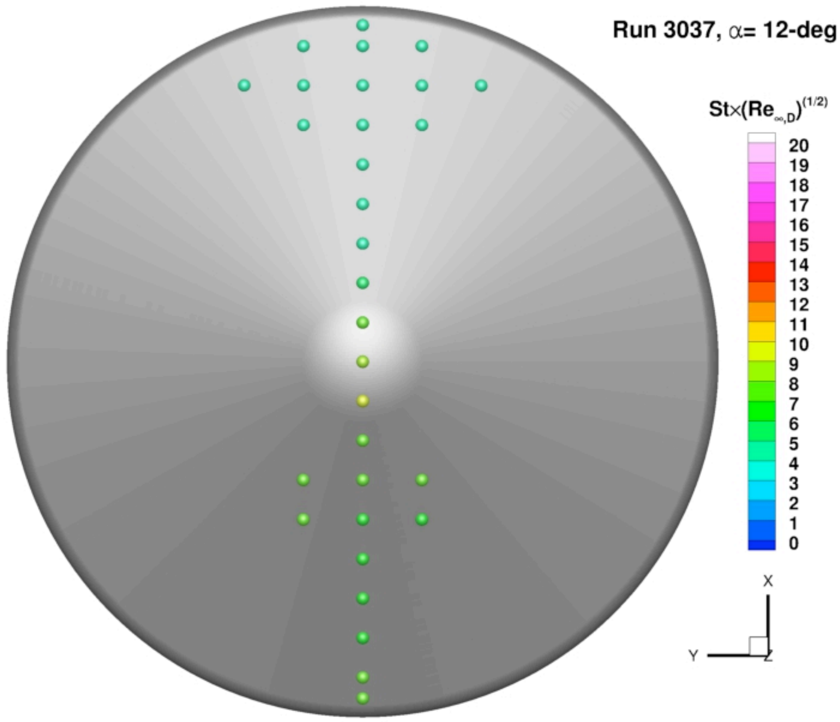


a) **Forebody**

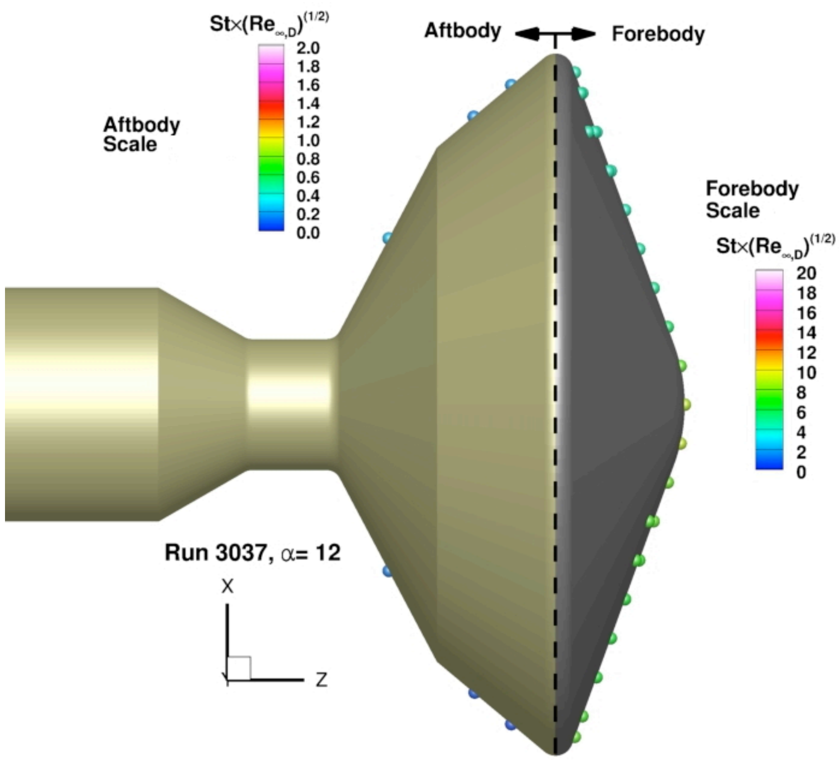


b) **Aftbody**

Figure B - 91. Run 3037 heating data, Mach 10 nozzle, $Re_\infty = 1.3\times10^6$/ft, α = 8°.

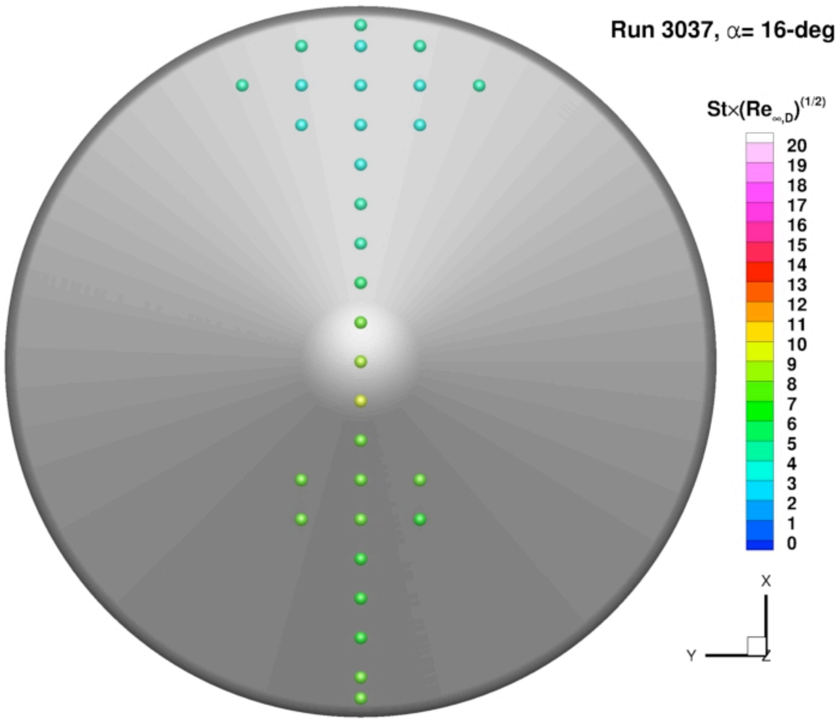


a) **Forebody**

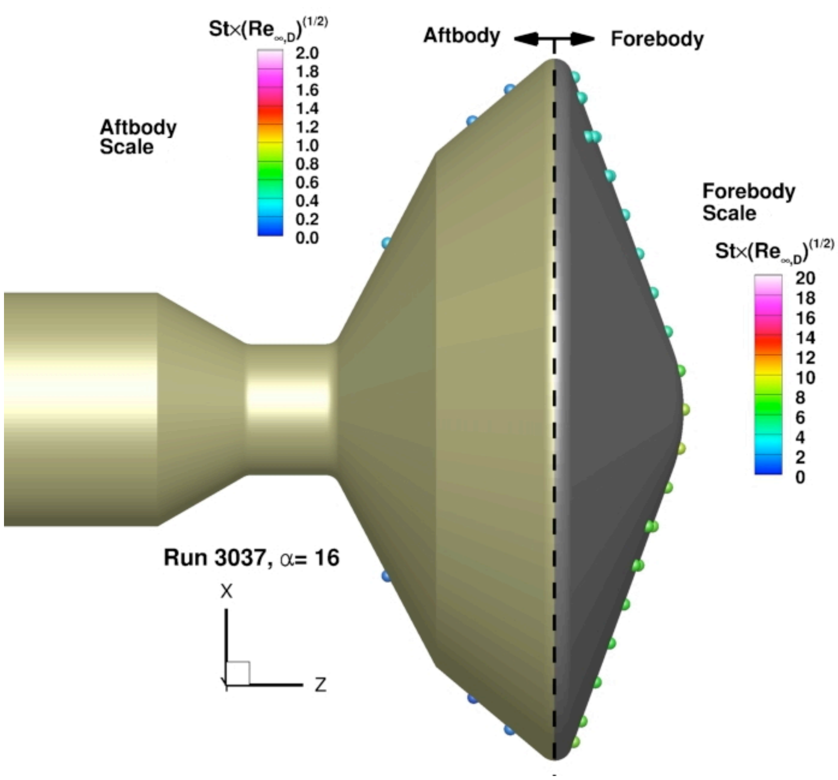


b) **Aftbody**

Figure B - 92. Run 3037 heating data, Mach 10 nozzle, $Re_\infty = 1.3\times10^6$/ft, α = 12°.

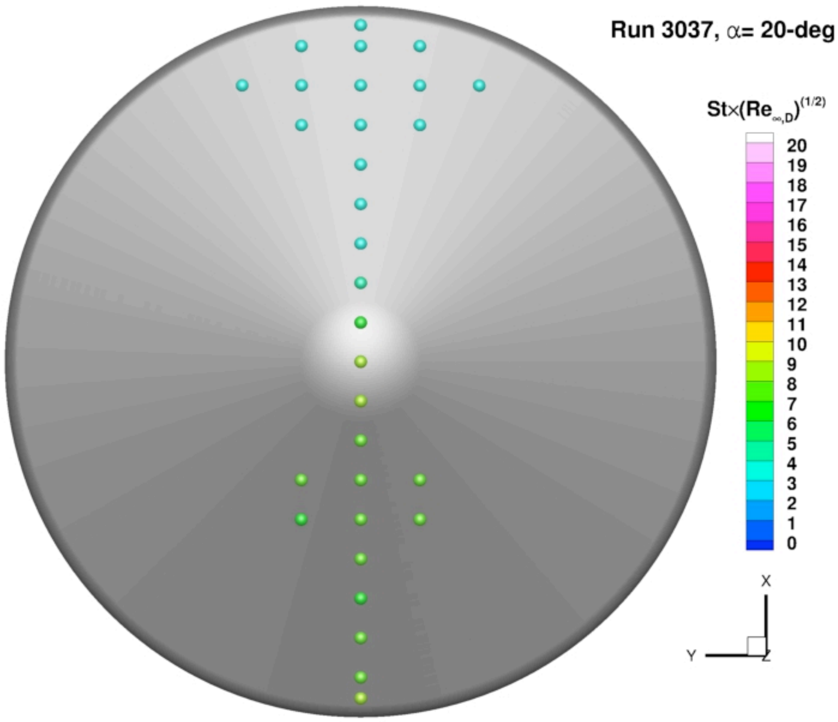


a) **Forebody**

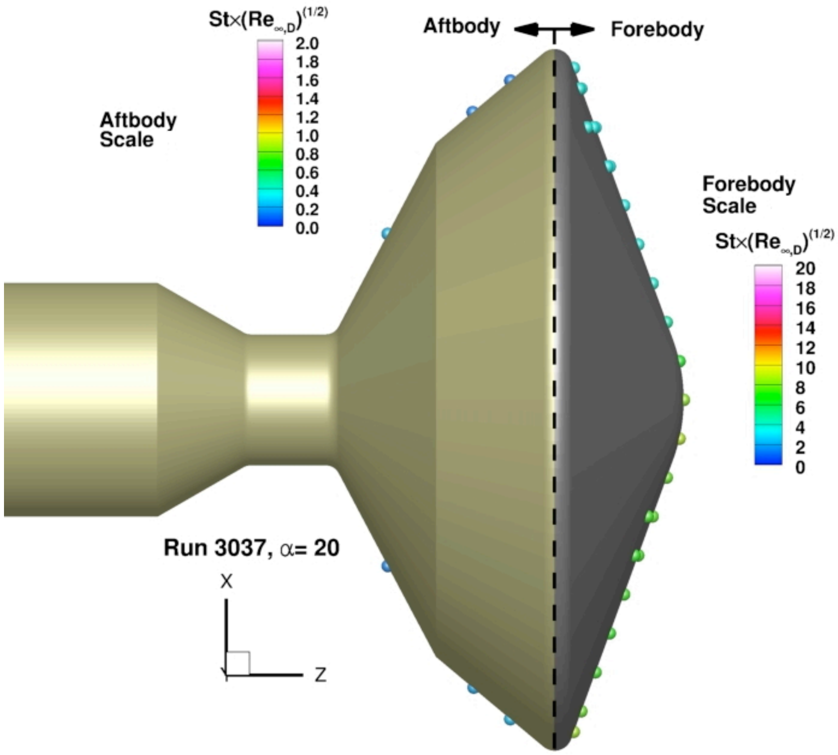


b) **Aftbody**

Figure B - 93. Run 3037 heating data, Mach 10 nozzle, $Re_\infty = 1.3\times10^6$/ft, α = 16°.

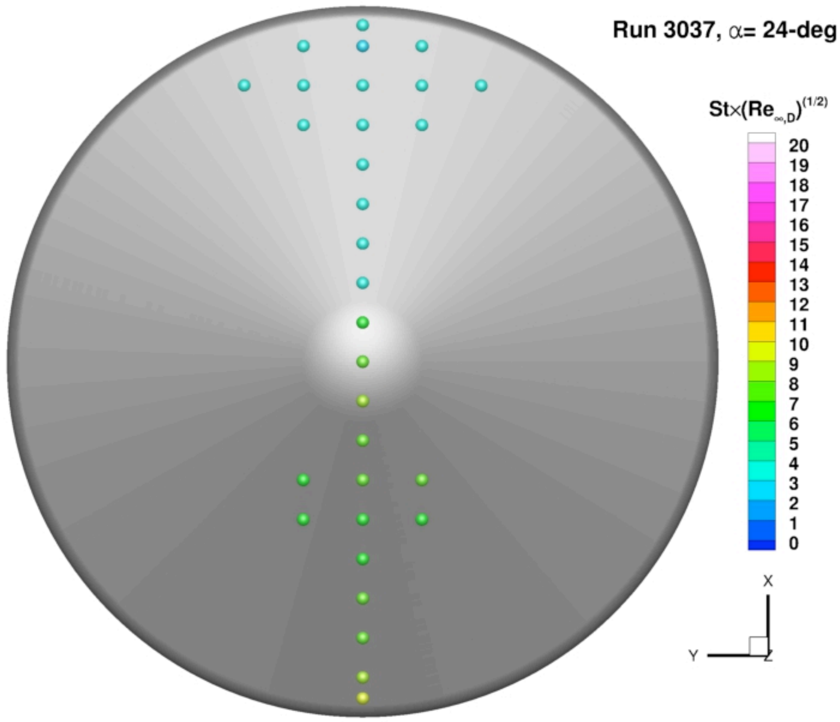


a) **Forebody**

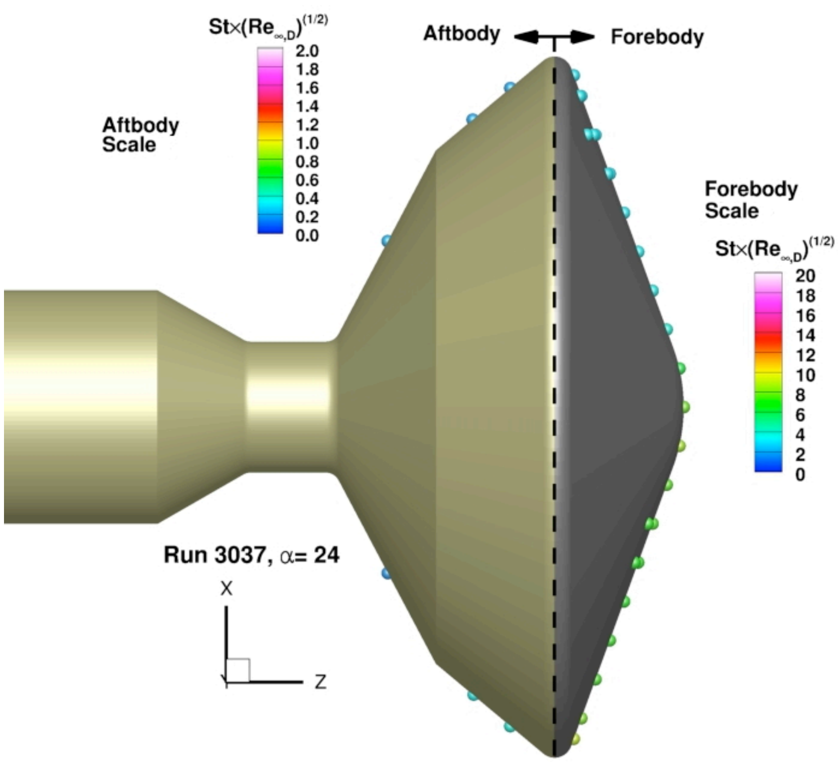


b) **Aftbody**

Figure B - 94. Run 3037 heating data, Mach 10 nozzle, $Re_\infty = 1.3\times10^6$/ft, α = 20°.

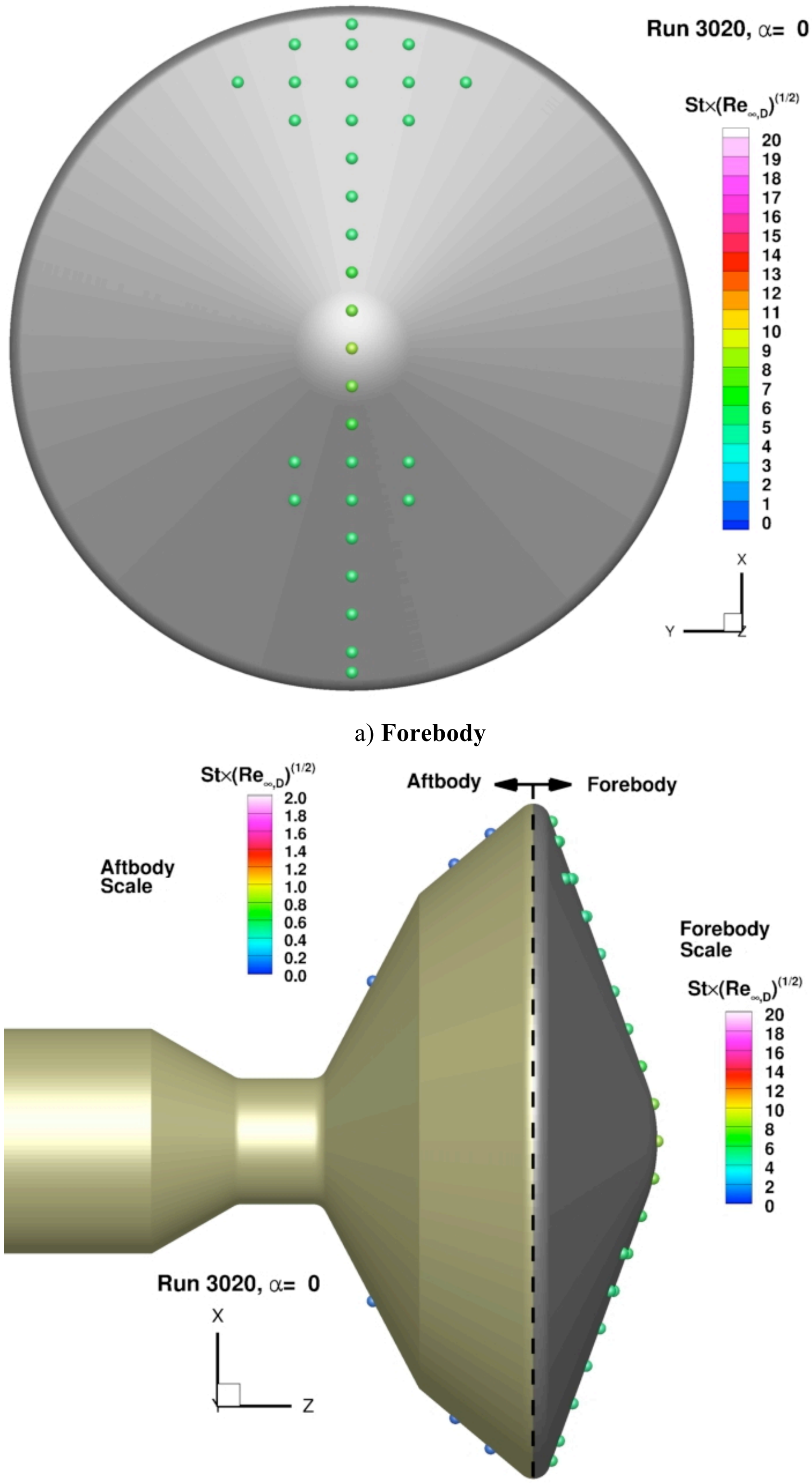


a) **Forebody**



b) **Aftbody**

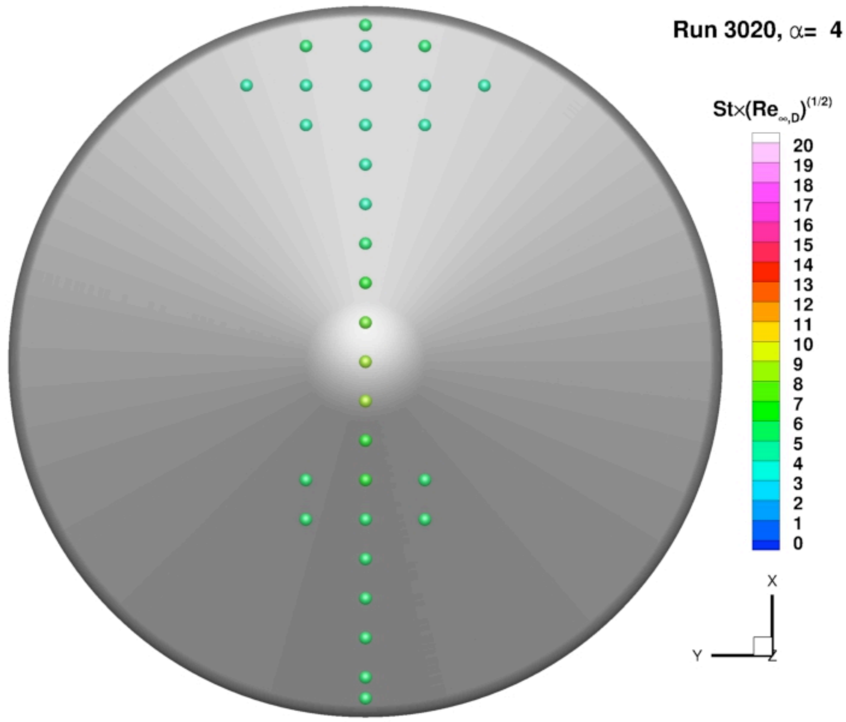
Figure B - 95. Run 3037 heating data, Mach 10 nozzle, $Re_\infty = 1.3\times10^6$/ft, α = 24°.



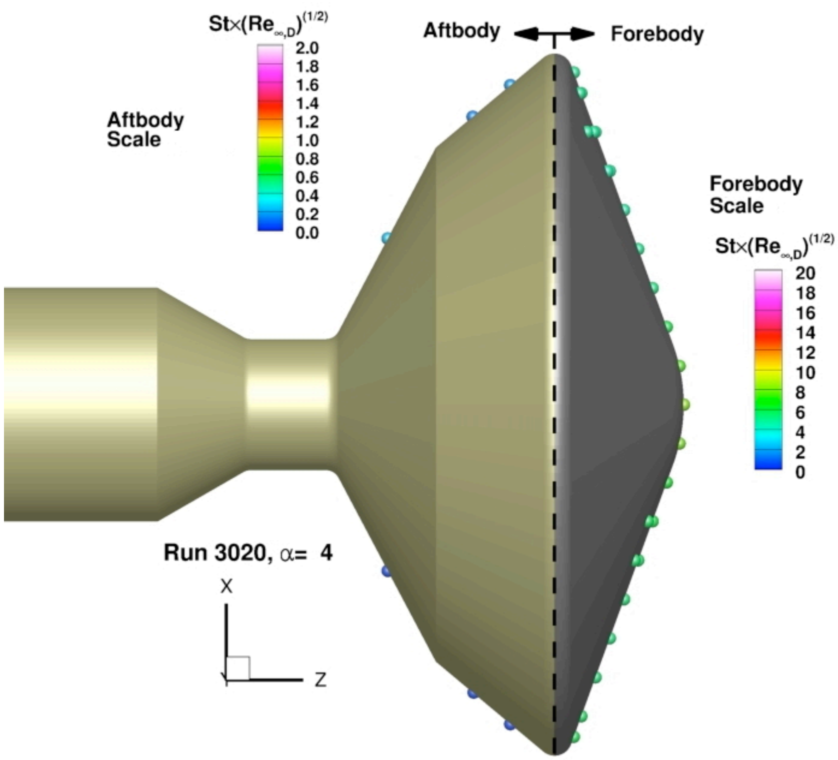
a) **Forebody**

b) **Aftbody**

Figure B - 96. Run 3020 heating data, Mach 10 nozzle, $Re_\infty = 1.9\times10^6$/ft, $\alpha = 0°$.

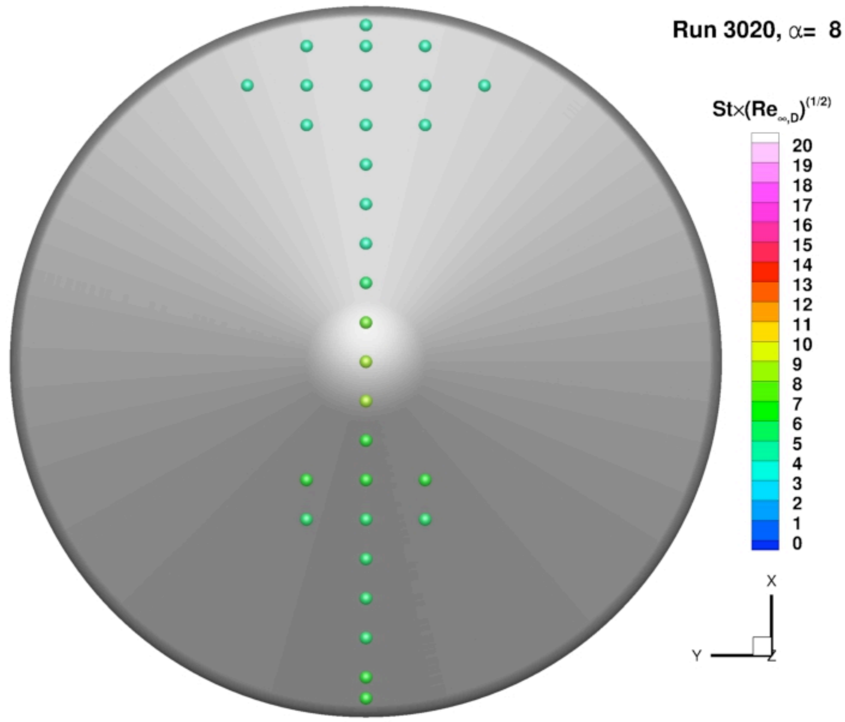


a) **Forebody**

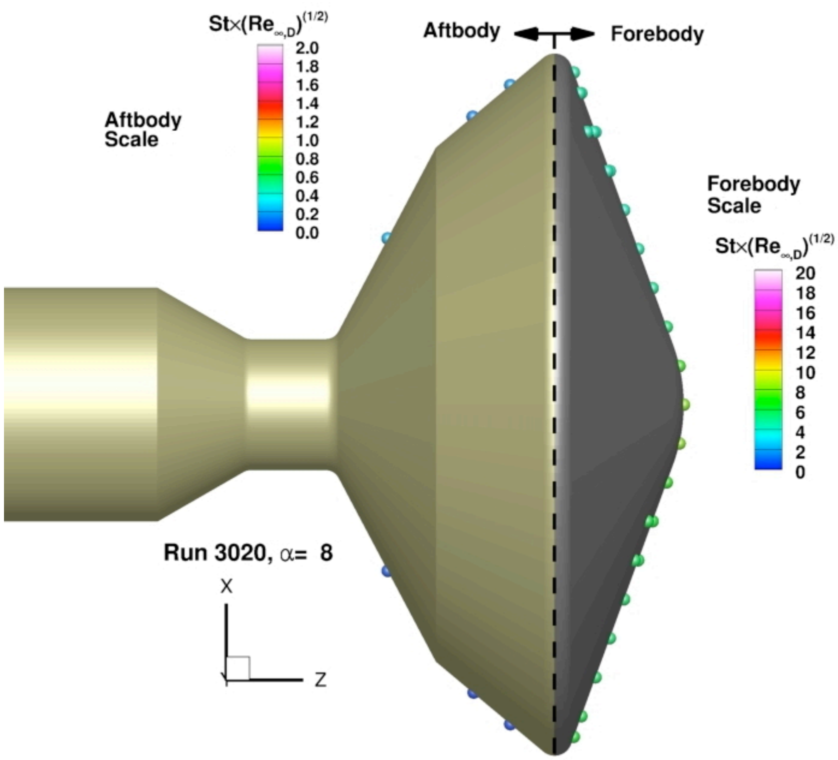


b) **Aftbody**

Figure B - 97. Run 3020 heating data, Mach 10 nozzle, $Re_\infty = 1.9{\times}10^6$/ft, $\alpha = 4°$.

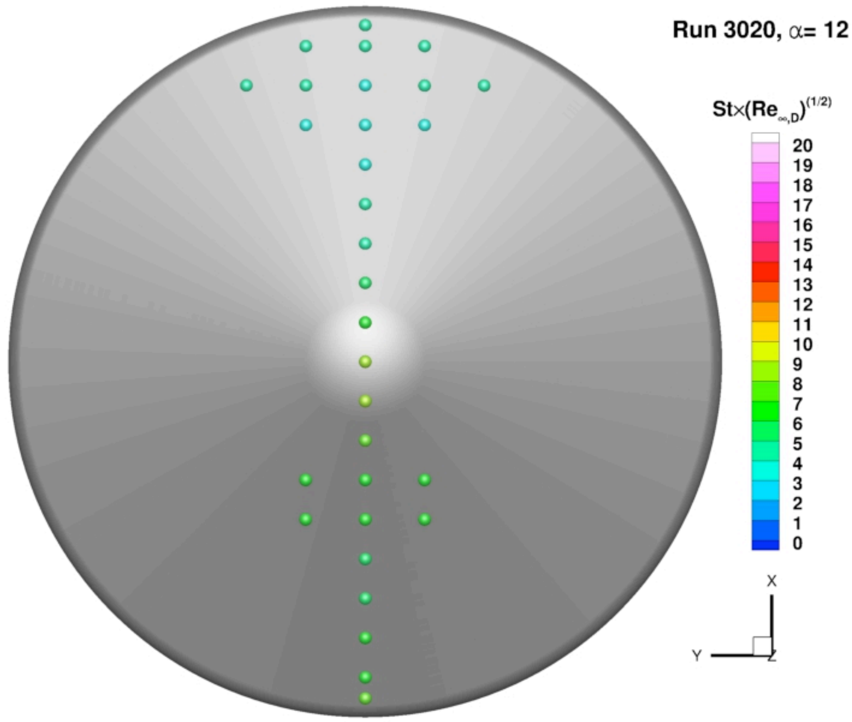


a) **Forebody**

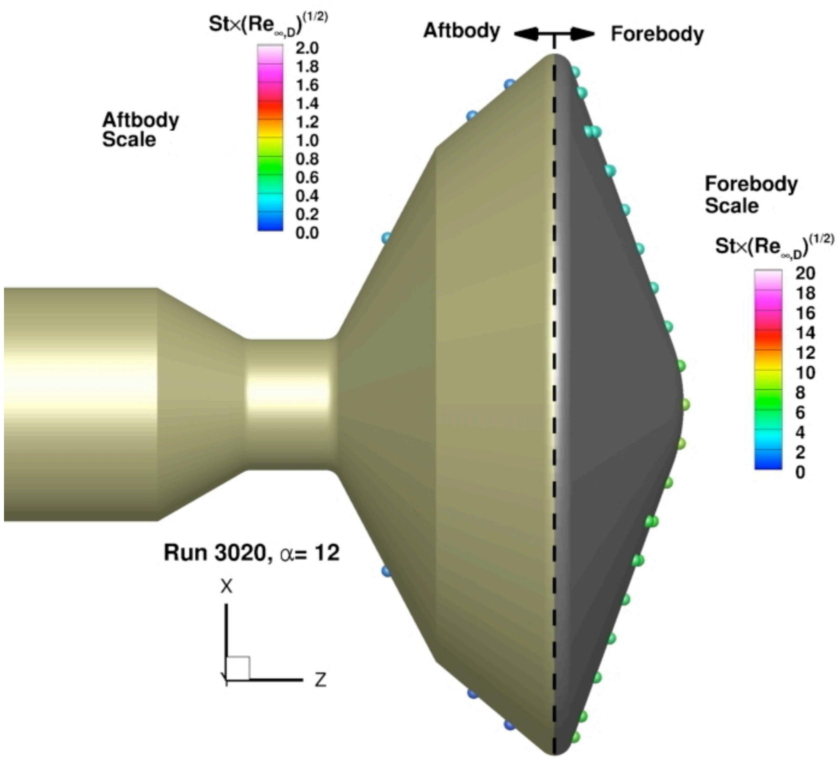


b) **Aftbody**

Figure B - 98. Run 3020 heating data, Mach 10 nozzle, $Re_{\infty} = 1.9\times10^6$/ft, $\alpha = 8°$.

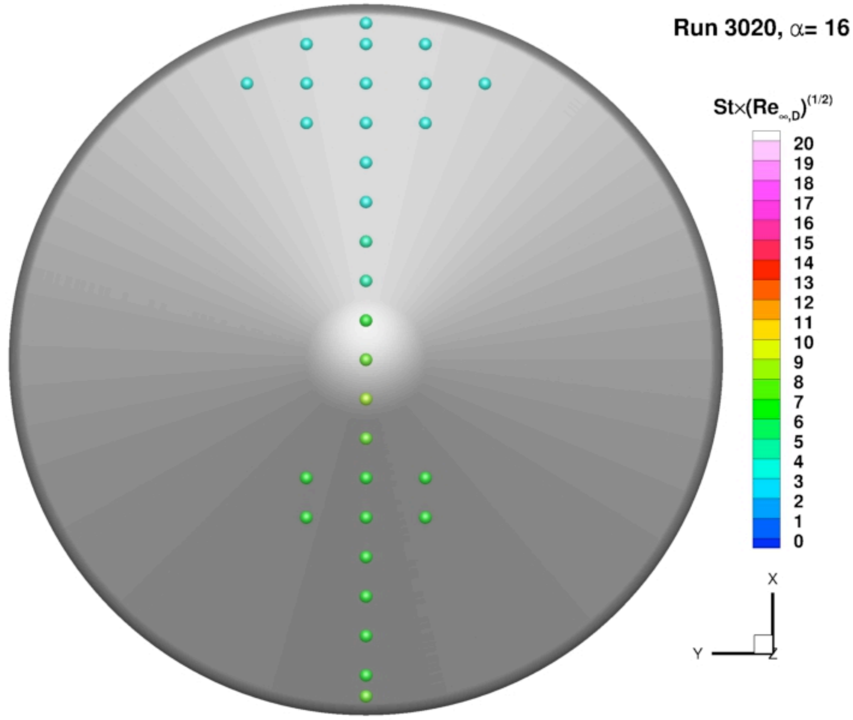


a) **Forebody**

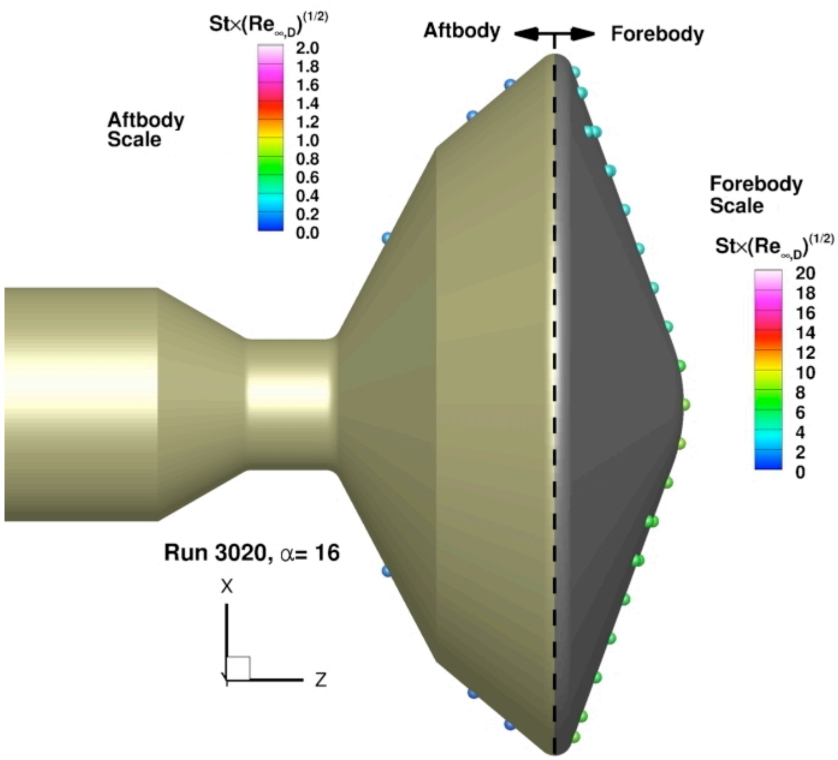


b) **Aftbody**

Figure B - 99. Run 3020 heating data, Mach 10 nozzle, $Re_\infty = 1.9\times10^6$/ft, α = 12°.

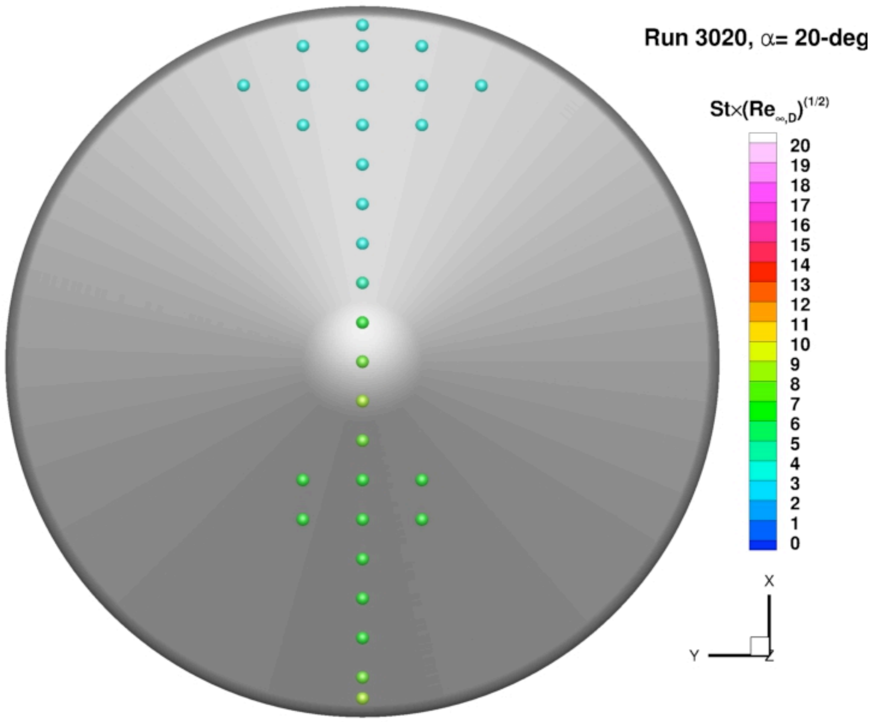


a) **Forebody**

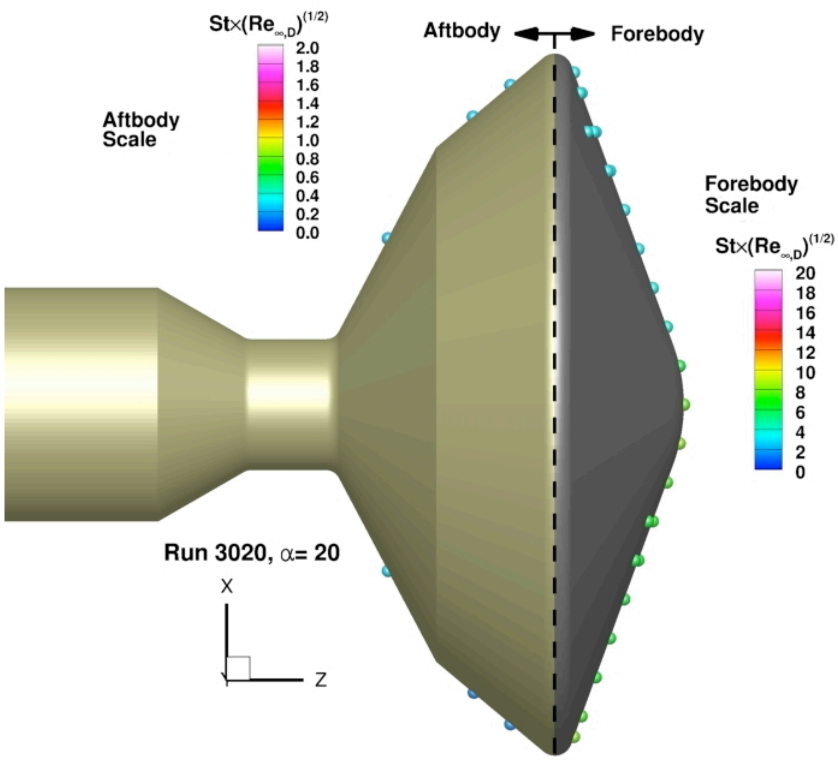


b) **Aftbody**

Figure B - 100. Run 3020 heating data, Mach 10 nozzle, $Re_\infty = 1.9\times10^6$/ft, $\alpha = 16°$.

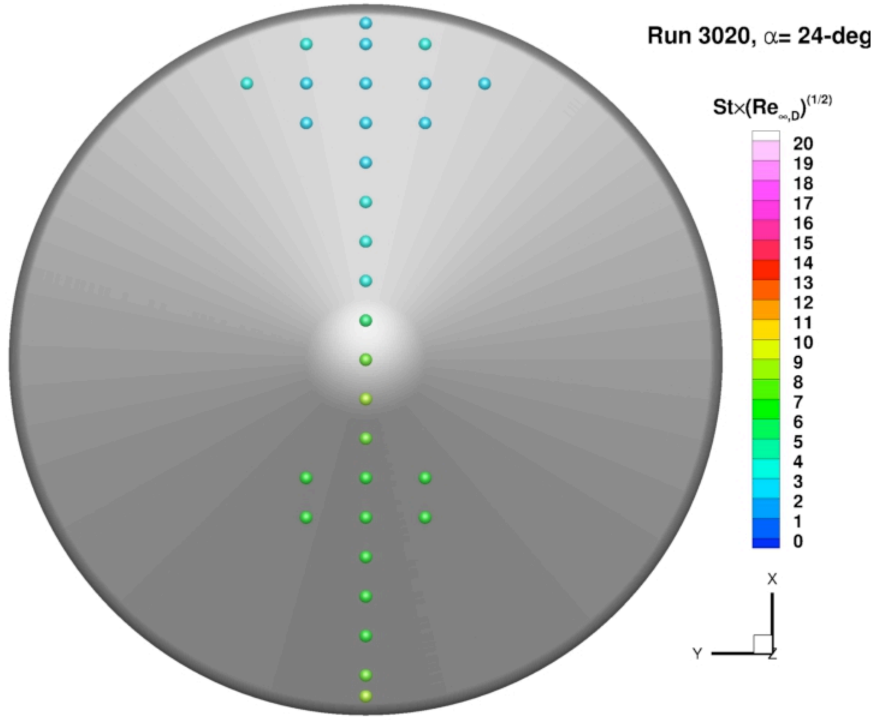


a) **Forebody**

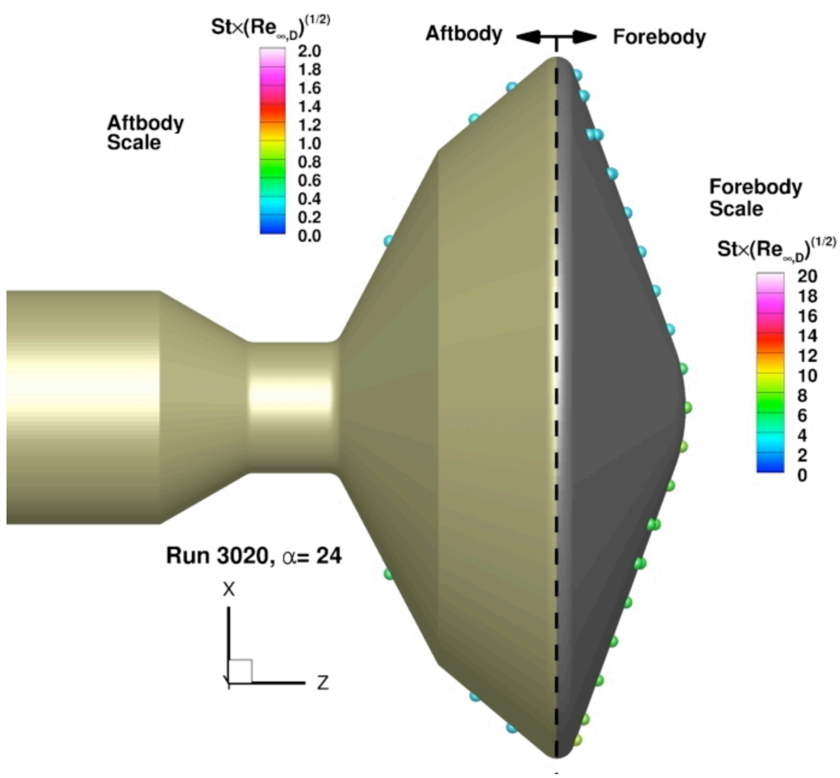


b) **Aftbody**

Figure B - 101. Run 3020 heating data, Mach 10 nozzle, $Re_\infty = 1.9\times10^6$/ft, α = 20°.

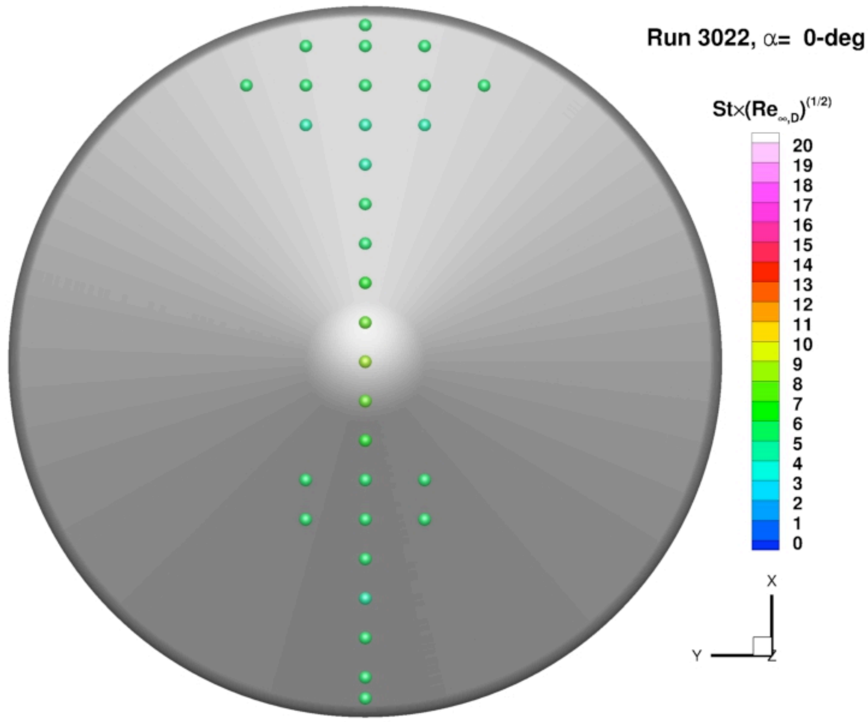


a) **Forebody**

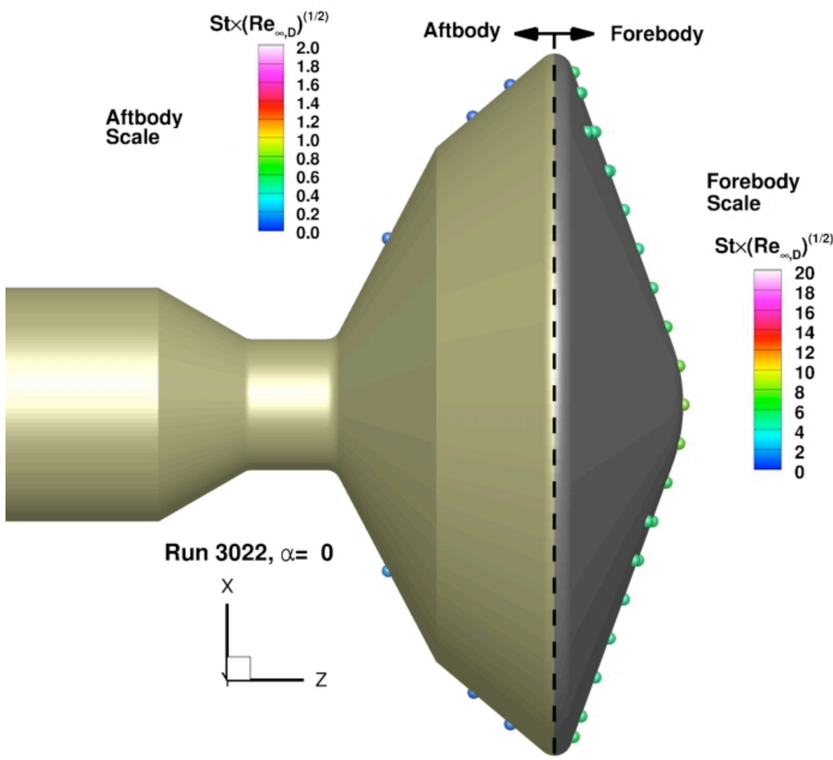


b) **Aftbody**

Figure B - 102. Run 3020 heating data, Mach 10 nozzle, $Re_\infty = 1.9\times10^6$/ft, α = 24°.

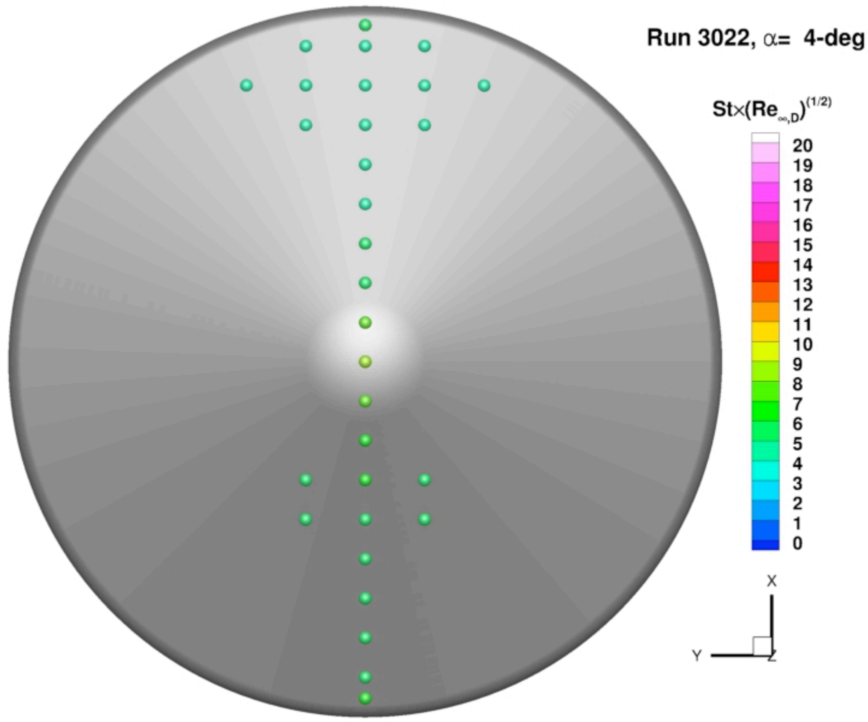


a) **Forebody**

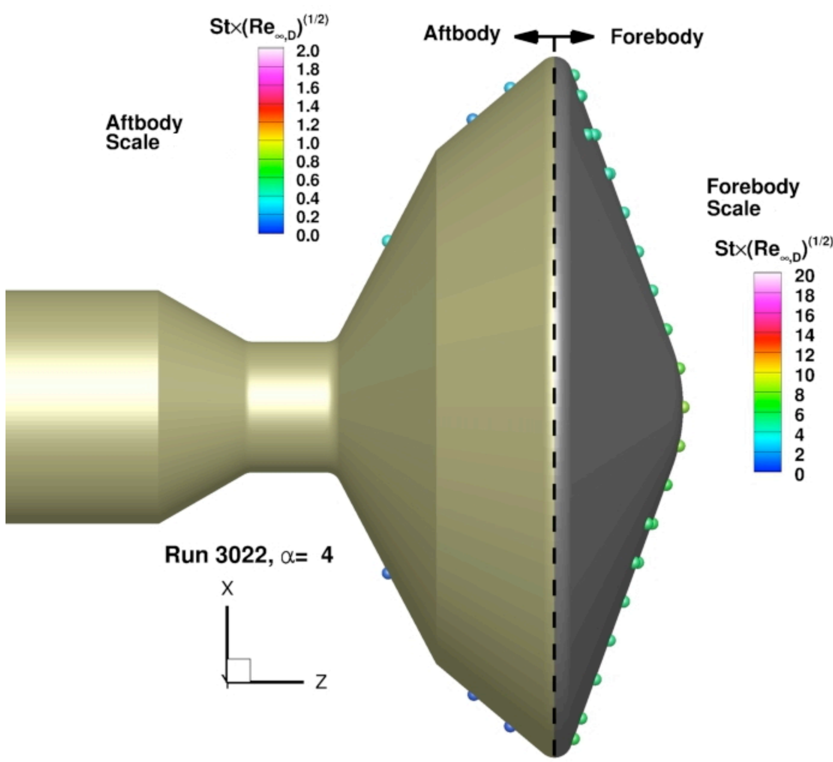


b) **Aftbody**

Figure B - 103. Run 3022 heating data, Mach 10 nozzle, $Re_\infty = 4.6{\times}10^6$/ft, α = 0°.

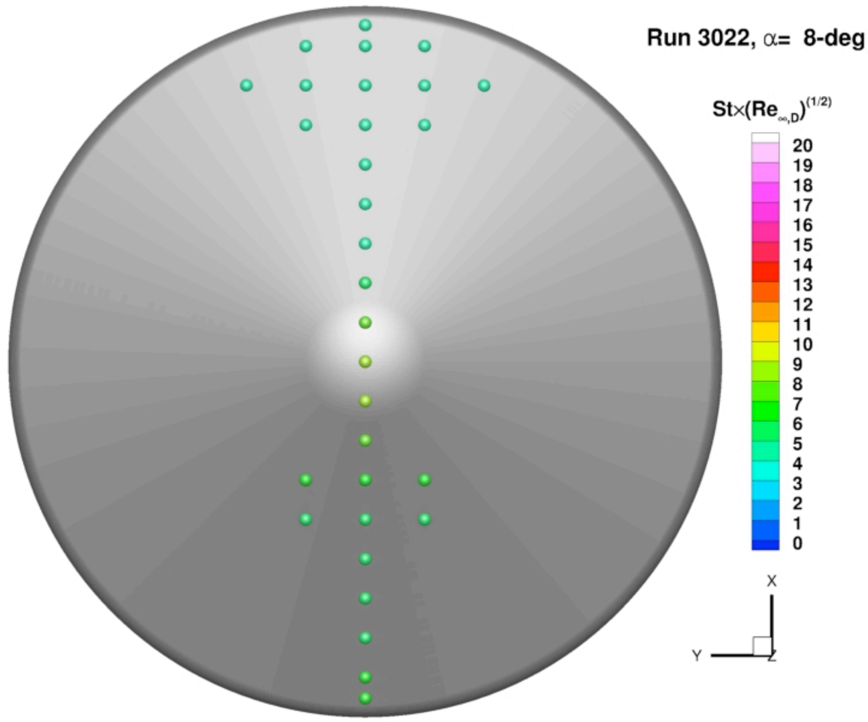


a) **Forebody**

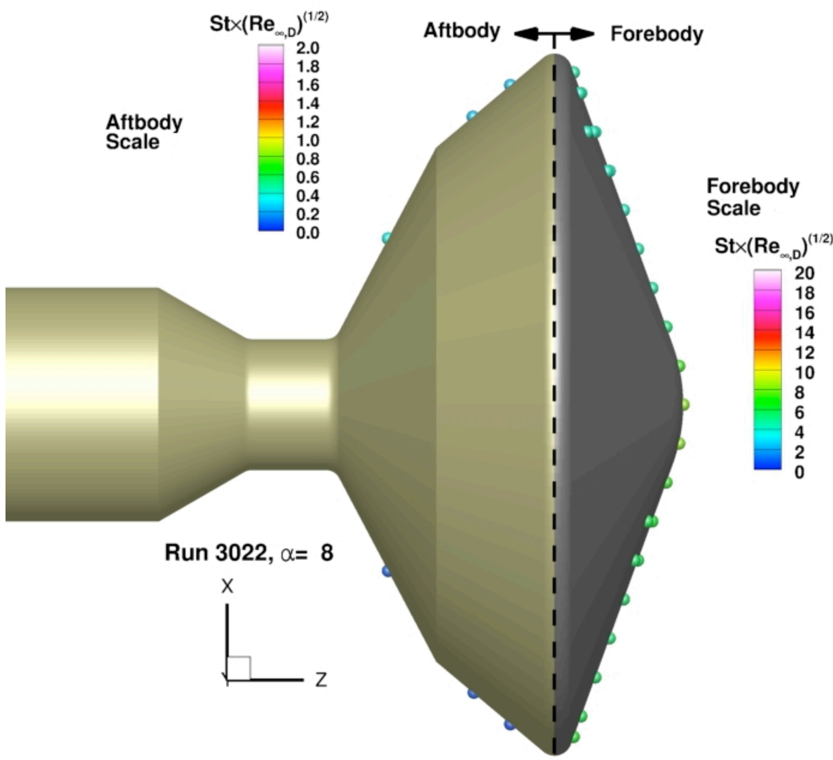


b) **Aftbody**

Figure B - 104. Run 3022 heating data, Mach 10 nozzle, $Re_\infty = 4.6\times10^6$/ft, α = 4°.

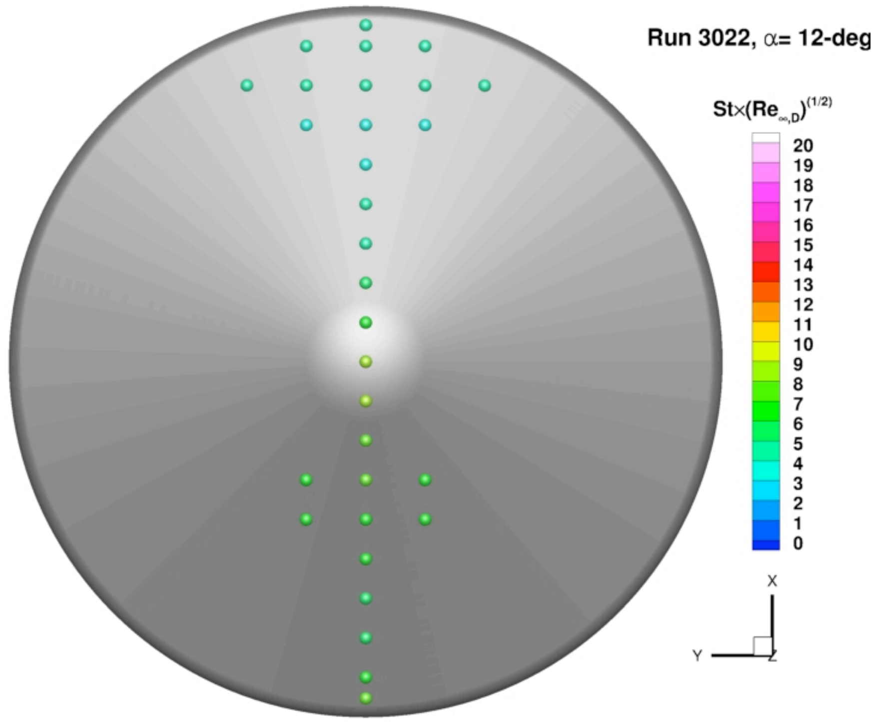


a) **Forebody**

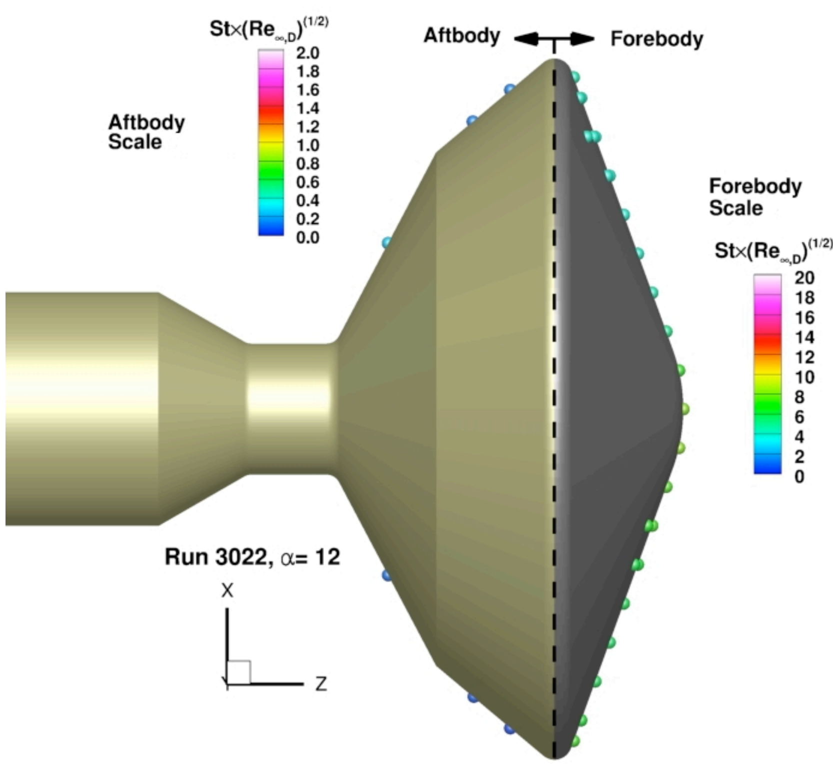


b) **Aftbody**

Figure B - 105. Run 3022 heating data, Mach 10 nozzle, $Re_\infty = 4.6\times10^6$/ft, $\alpha = 8°$.

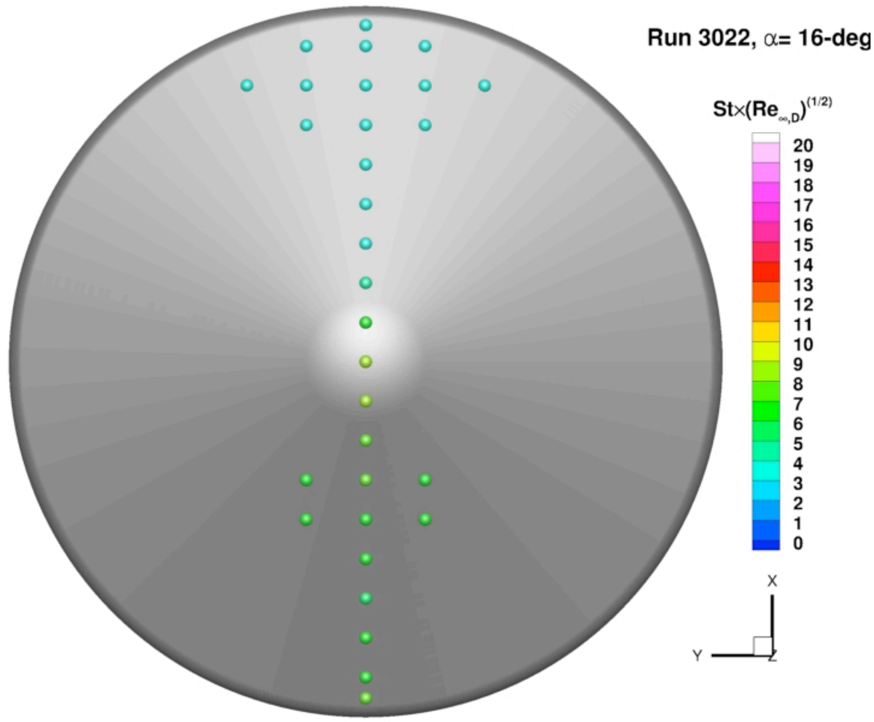


a) **Forebody**

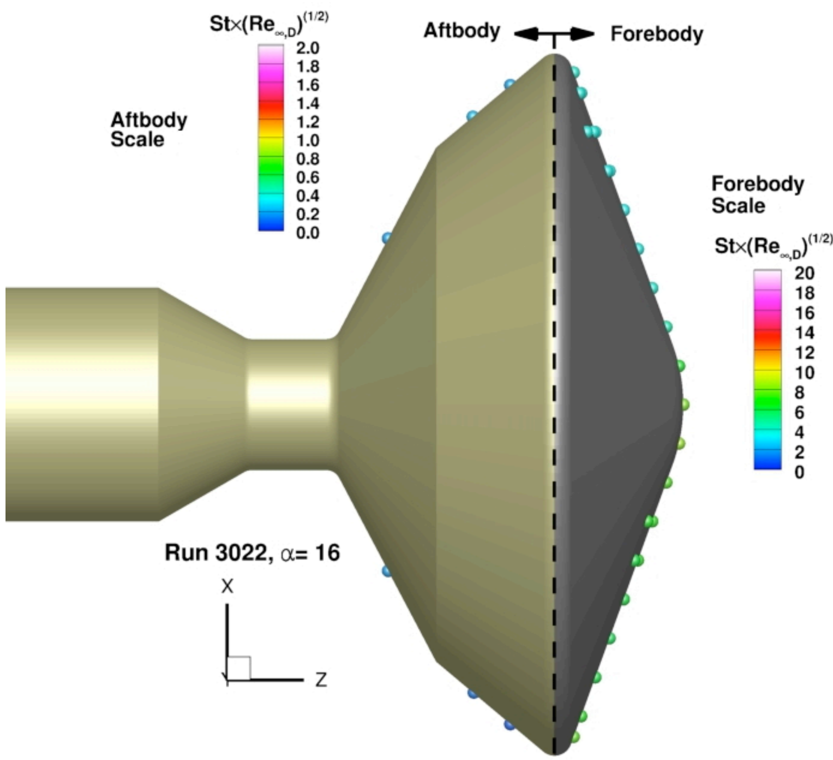


b) **Aftbody**

Figure B - 106. Run 3022 heating data, Mach 10 nozzle, $Re_\infty = 4.6\times10^6$/ft, α = 12°.

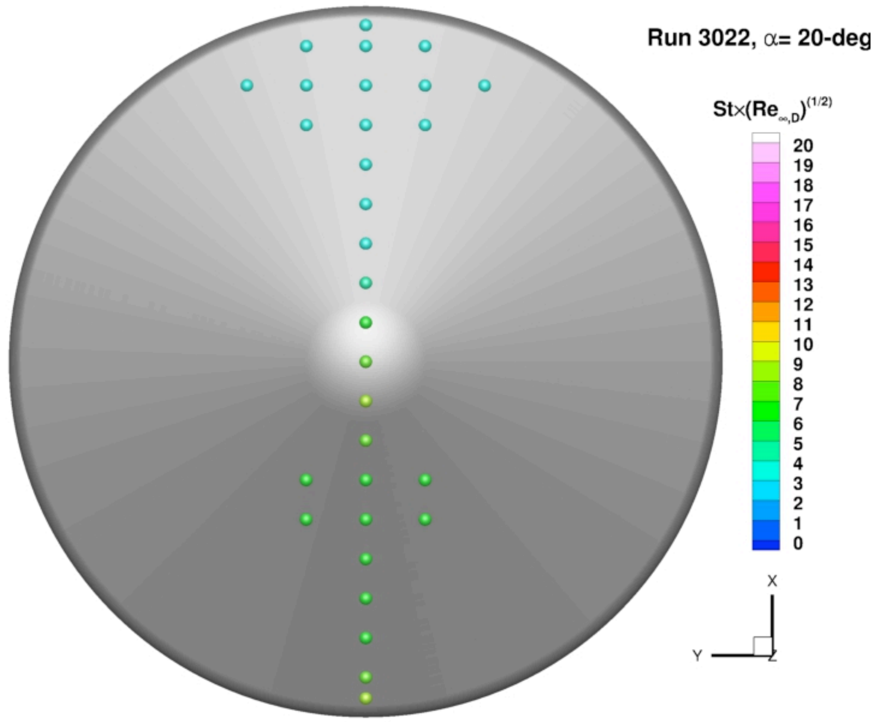


a) **Forebody**

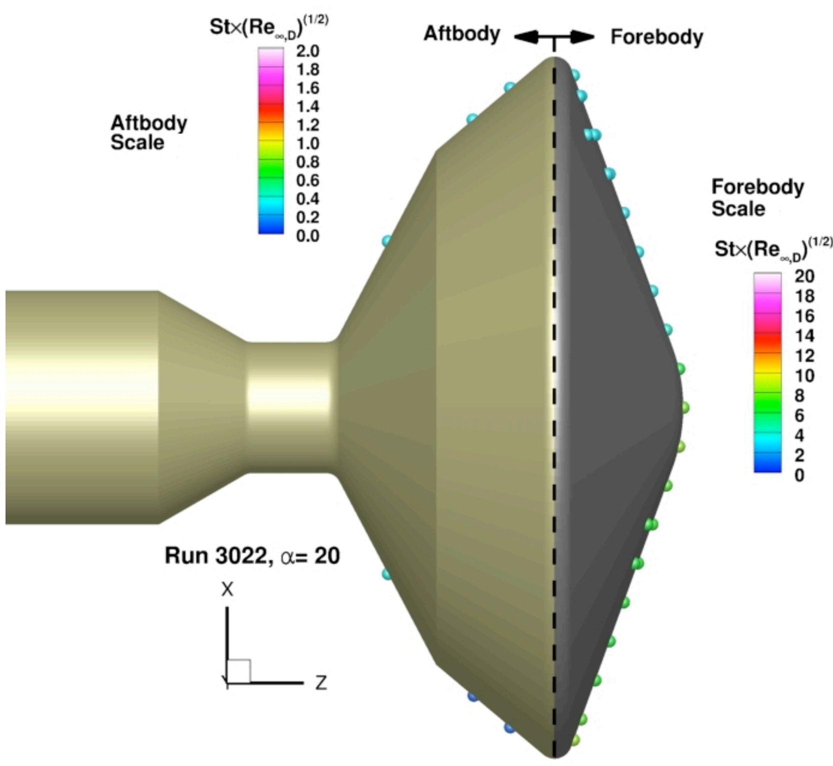


b) **Aftbody**

Figure B - 107. Run 3022 heating data, Mach 10 nozzle, $Re_\infty = 4.6\times10^6$/ft, α = 16°.

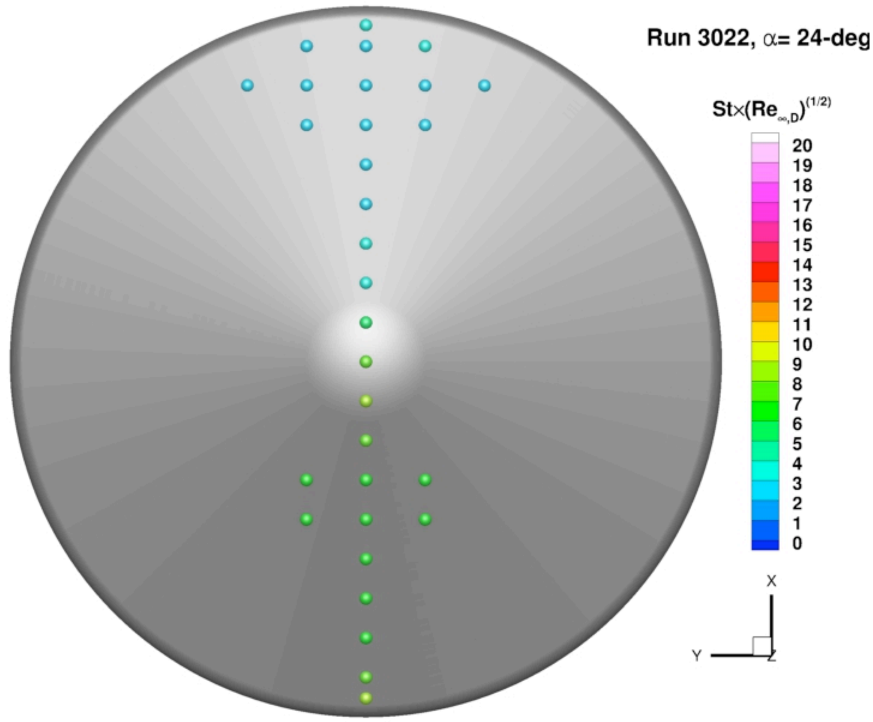


a) **Forebody**

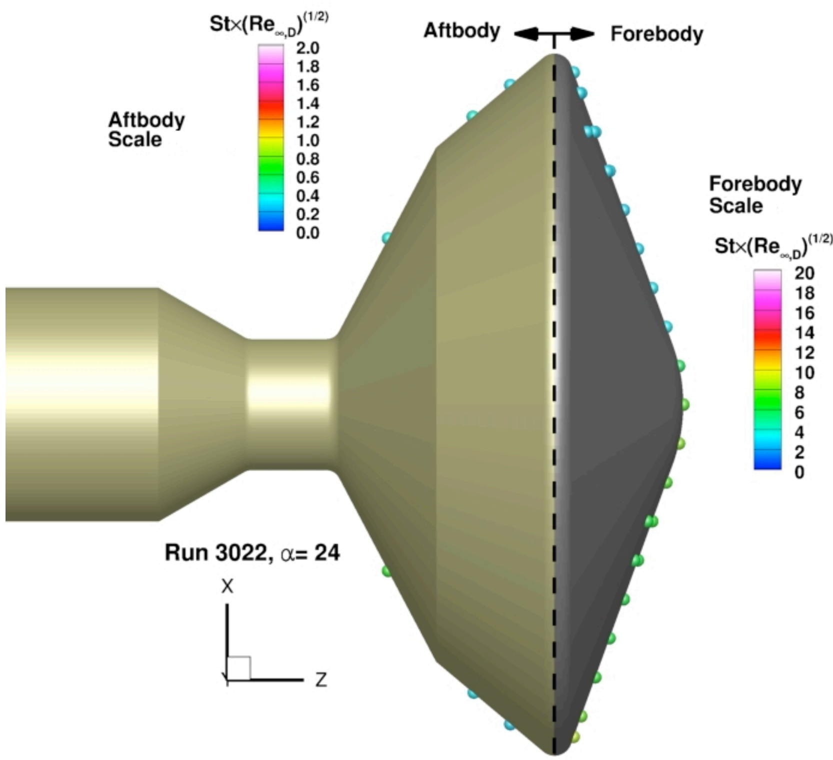


b) **Aftbody**

Figure B - 108. Run 3022 heating data, Mach 10 nozzle, $Re_{\infty} = 4.6{\times}10^{6}$/ft, α = 20°.

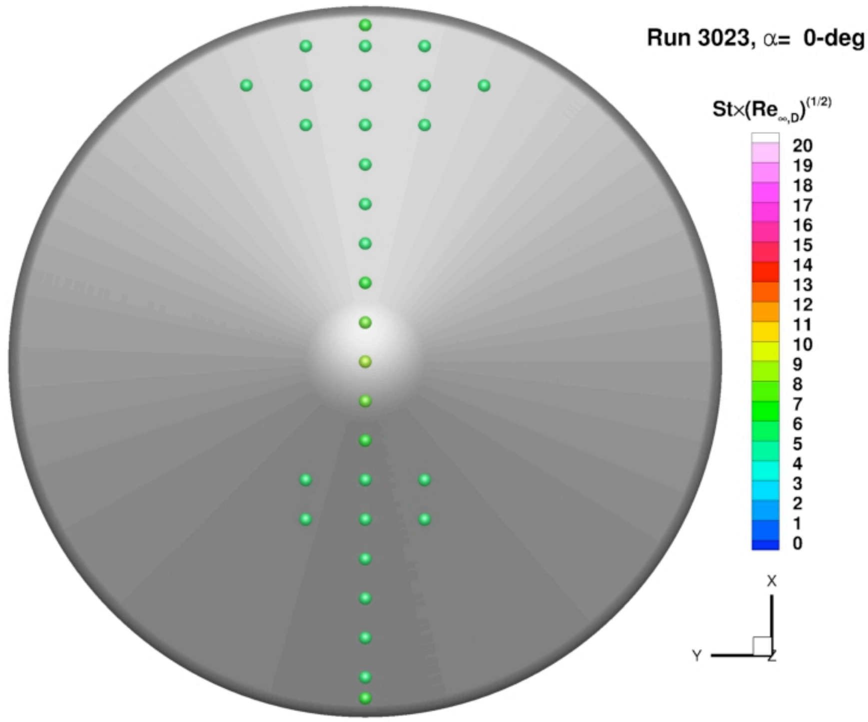


a) **Forebody**

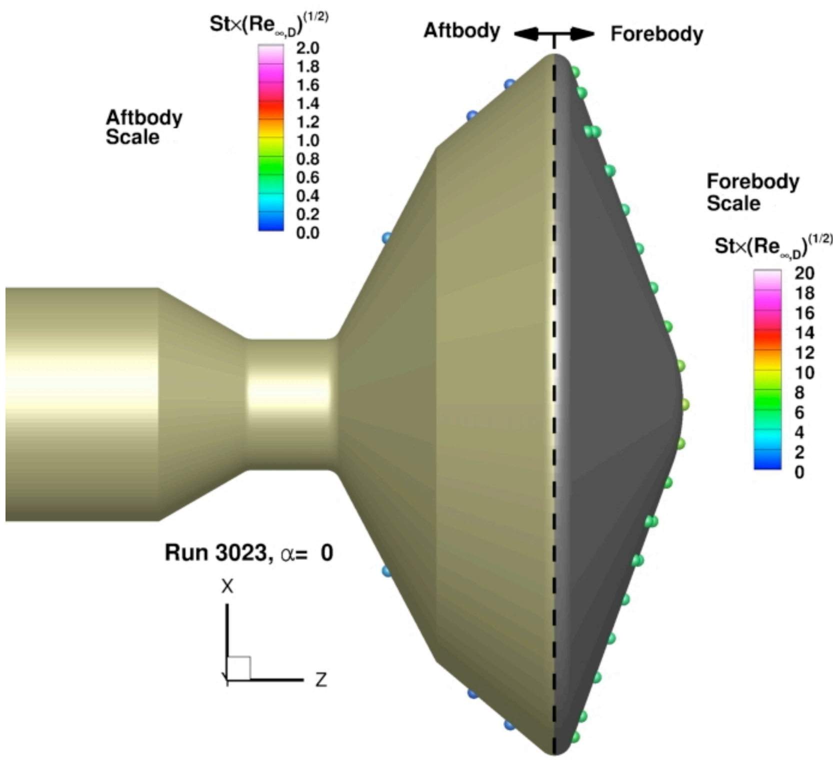


b) **Aftbody**

Figure B - 109. Run 3022 heating data, Mach 10 nozzle, $Re_\infty = 4.6\times10^6$/ft, α = 24°.

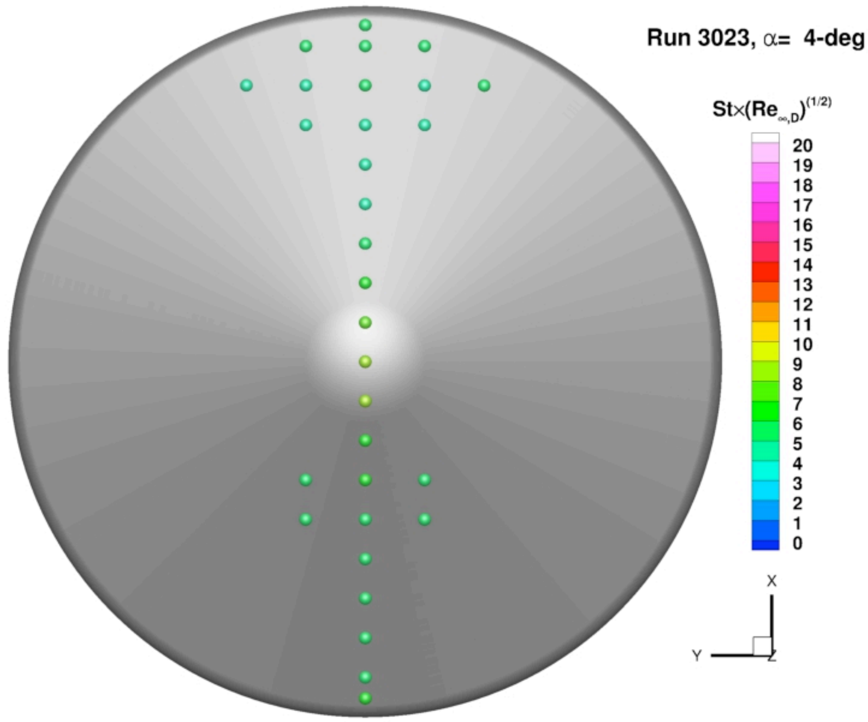


a) **Forebody**

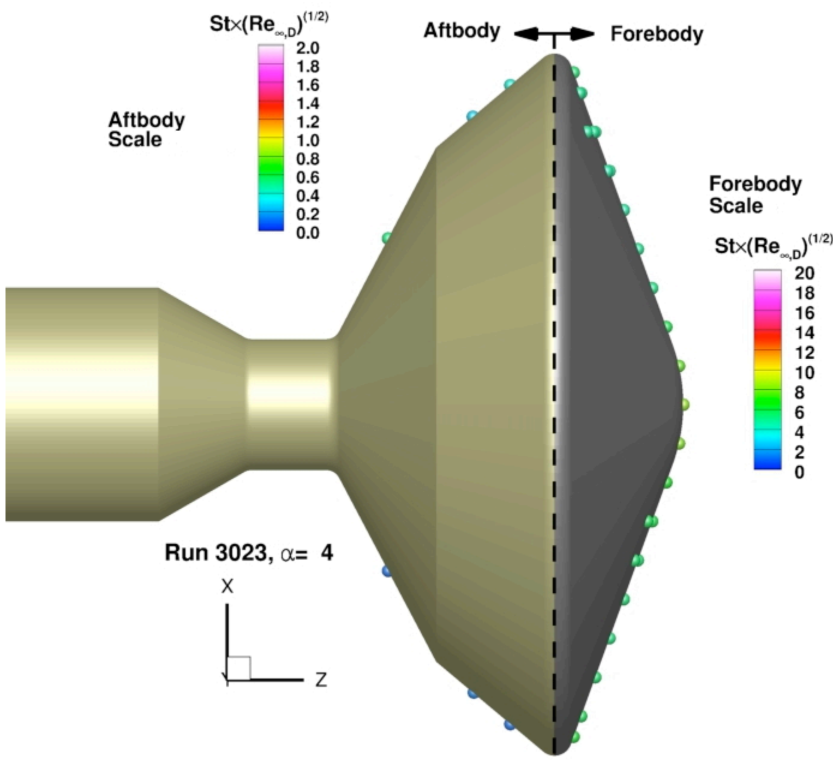


b) **Aftbody**

Figure B - 110. Run 3023 heating data, Mach 10 nozzle, $Re_\infty = 8.5\times10^6$/ft, $\alpha = 0°$.

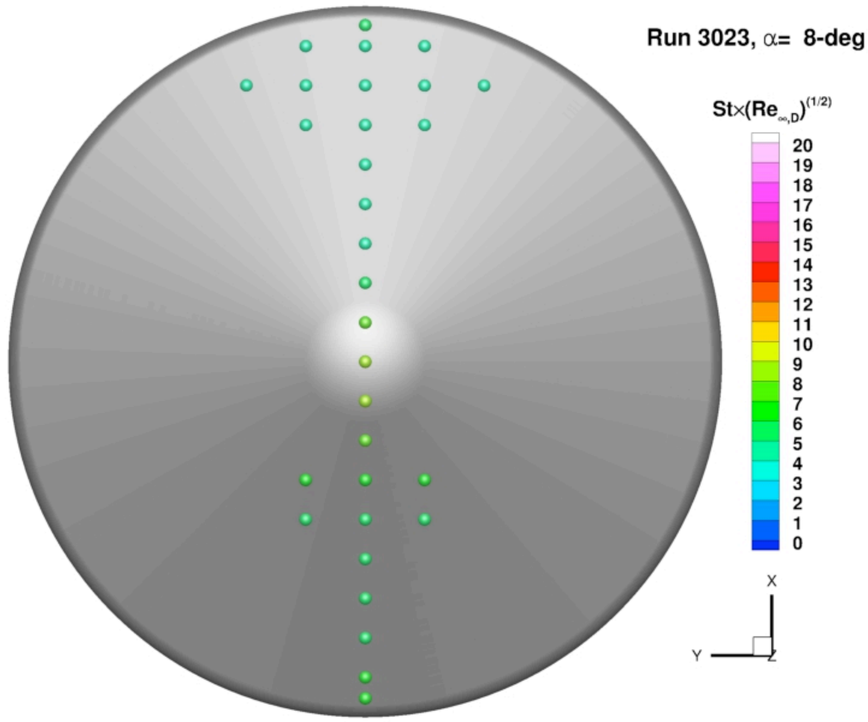


a) **Forebody**

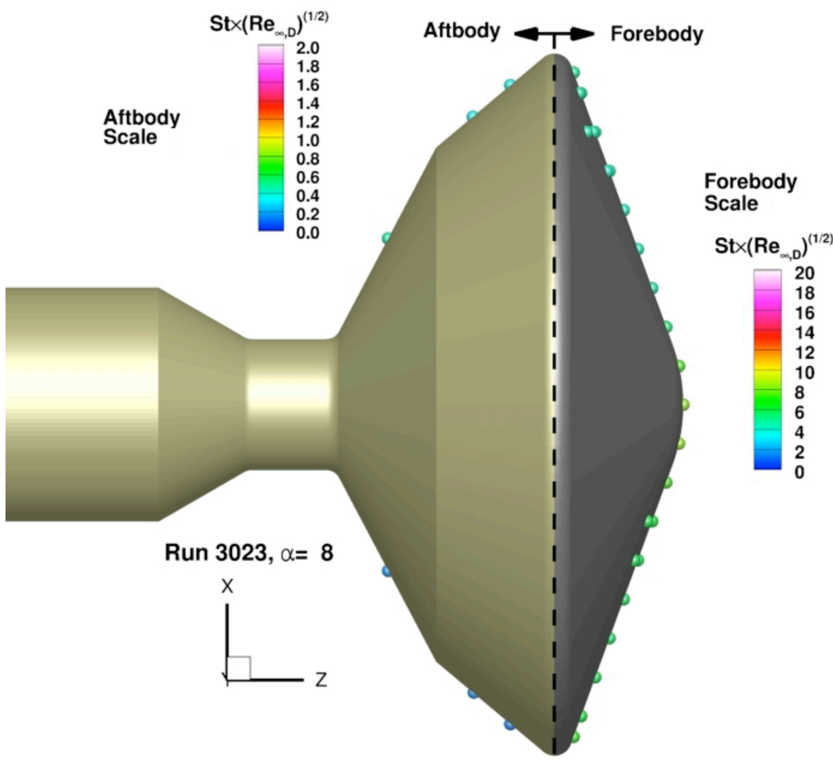


b) **Aftbody**

Figure B - 111. Run 3023 heating data, Mach 10 nozzle, $Re_\infty = 8.5\times10^6$/ft, $\alpha = 4°$.

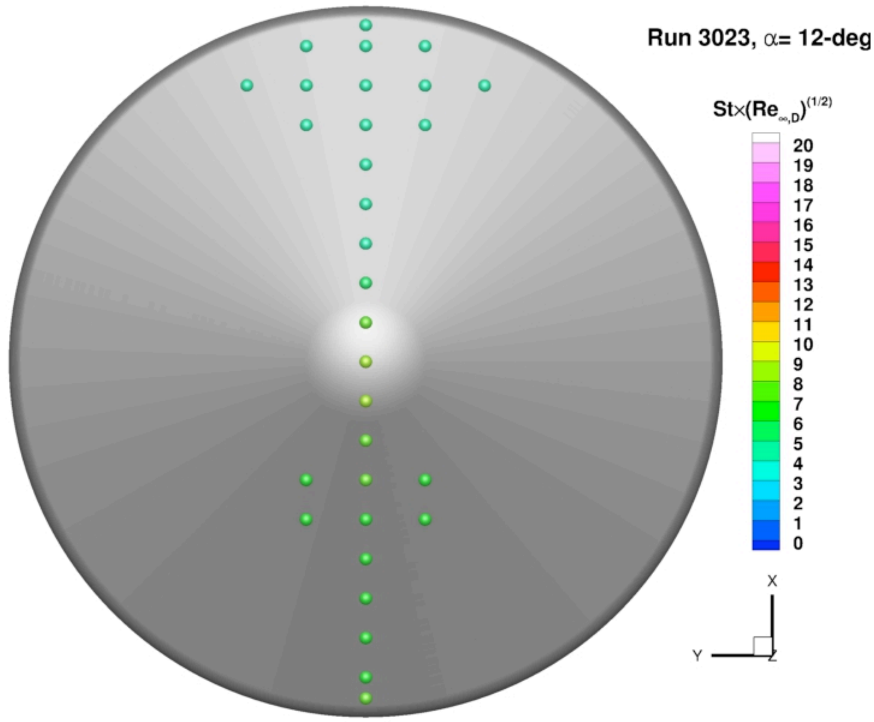


a) **Forebody**

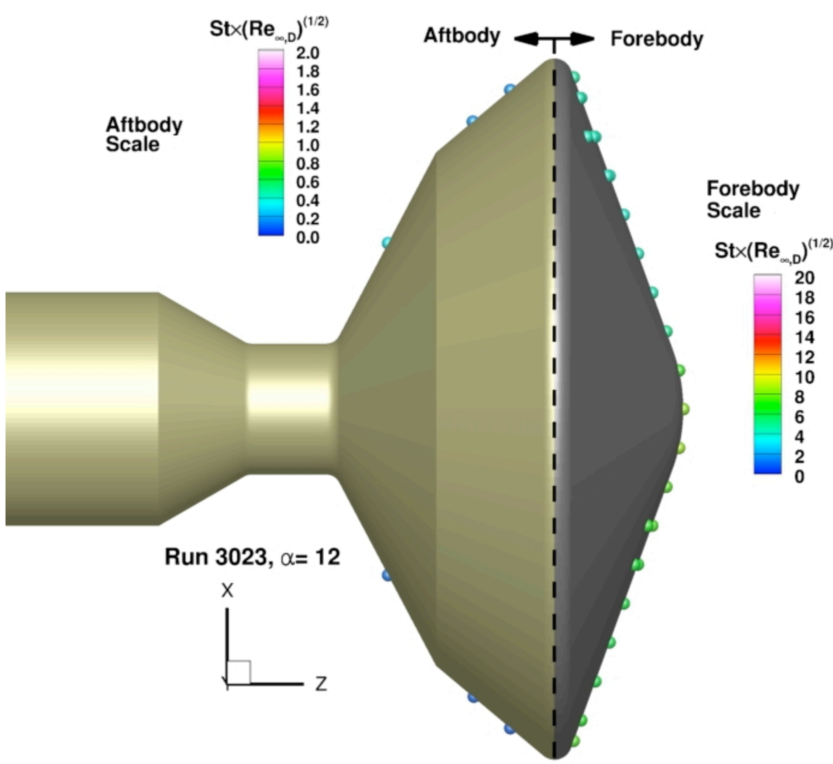


b) **Aftbody**

Figure B - 112. Run 3023 heating data, Mach 10 nozzle, Re$_\infty$ = 8.5×10^6/ft, α = 8°.

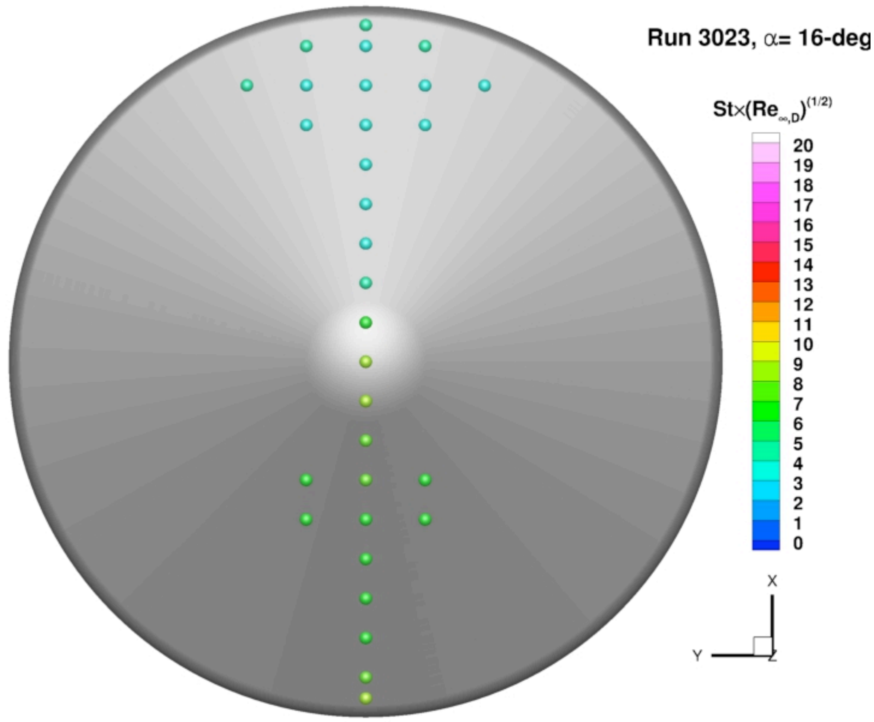


a) **Forebody**

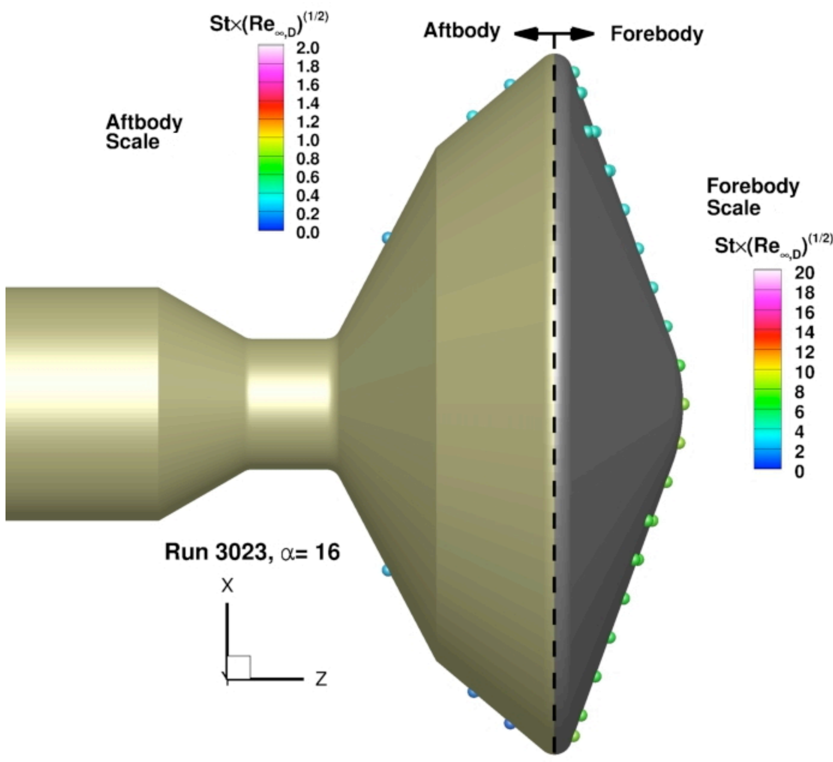


b) **Aftbody**

Figure B - 113. Run 3023 heating data, Mach 10 nozzle, $Re_{\infty} = 8.5 \times 10^6$/ft, α = 12°.

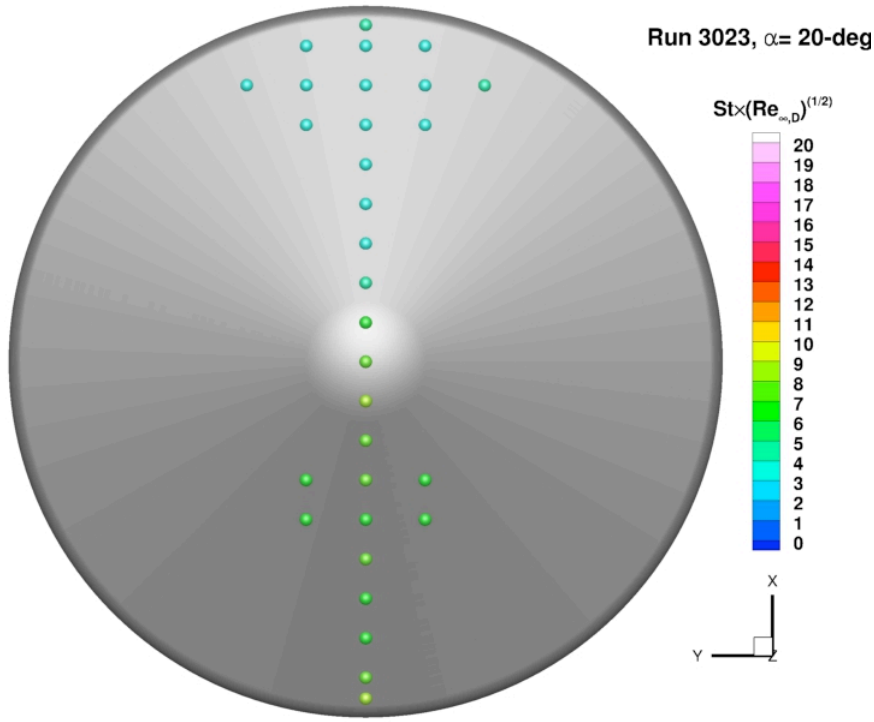


a) **Forebody**

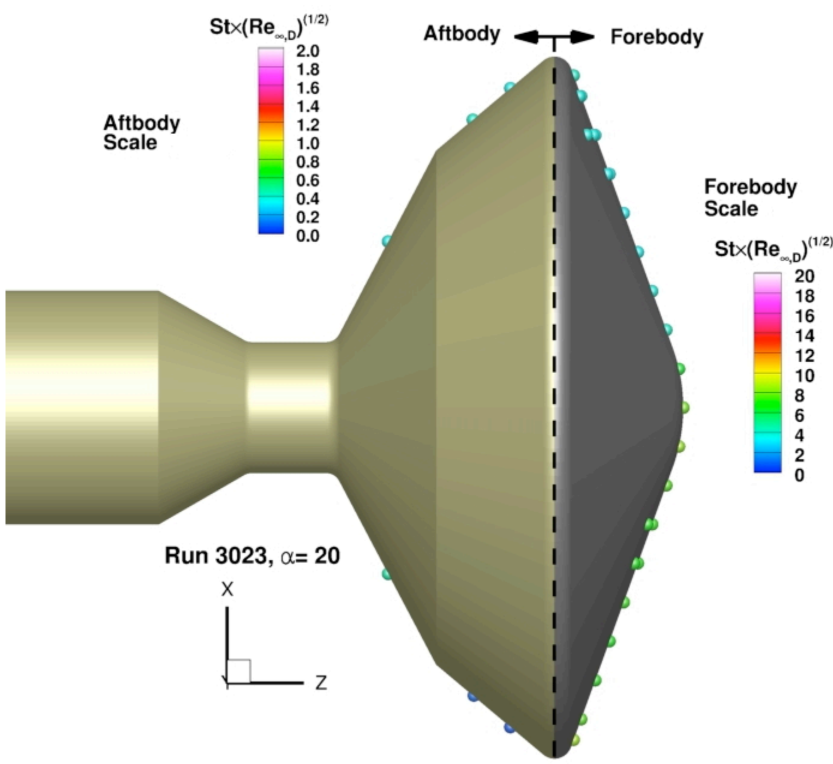


b) **Aftbody**

Figure B - 114. Run 3023 heating data, Mach 10 nozzle, $Re_\infty = 8.5\times10^6$/ft, $\alpha = 16°$.

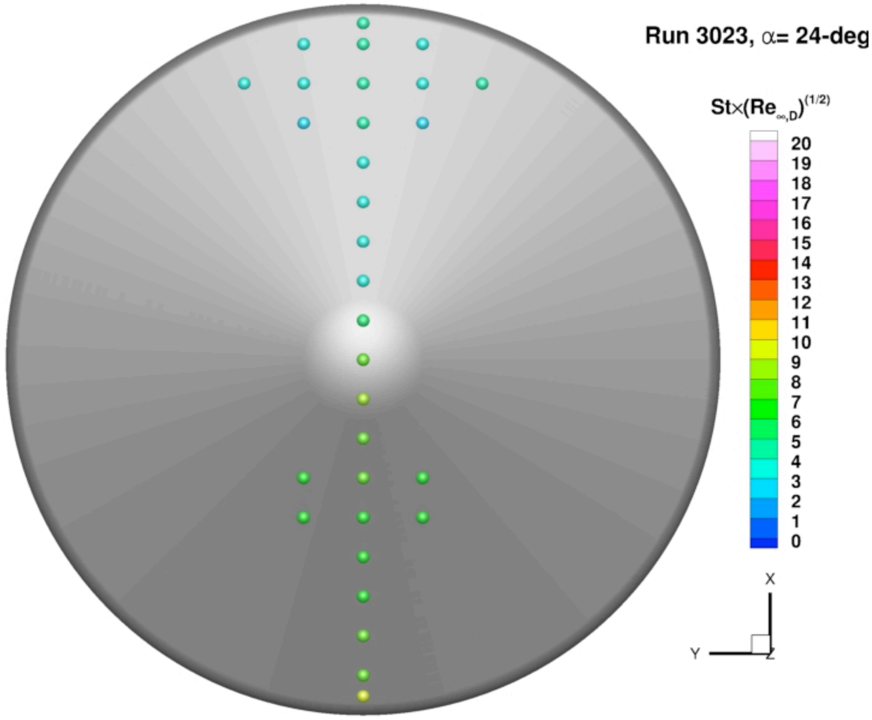


a) **Forebody**

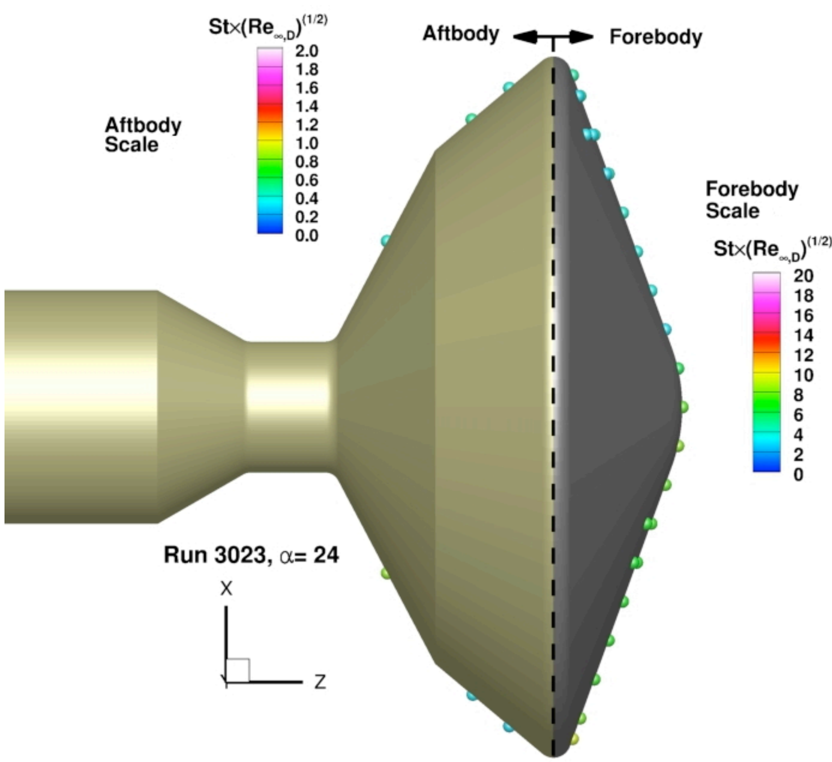


b) **Aftbody**

Figure B - 115. Run 3023 heating data, Mach 10 nozzle, $Re_{\infty} = 8.5\times10^6$/ft, α = 20°.

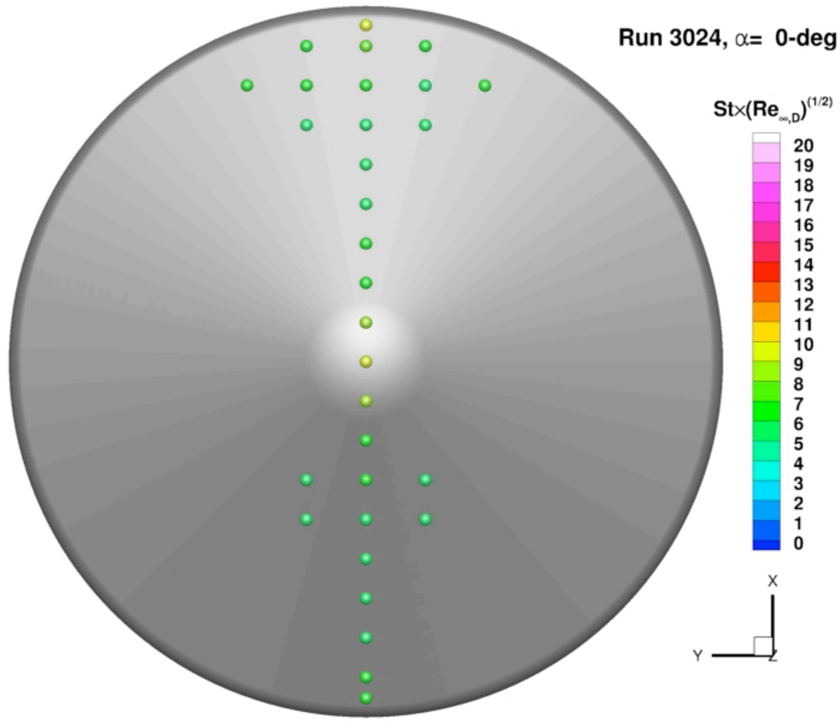


a) **Forebody**

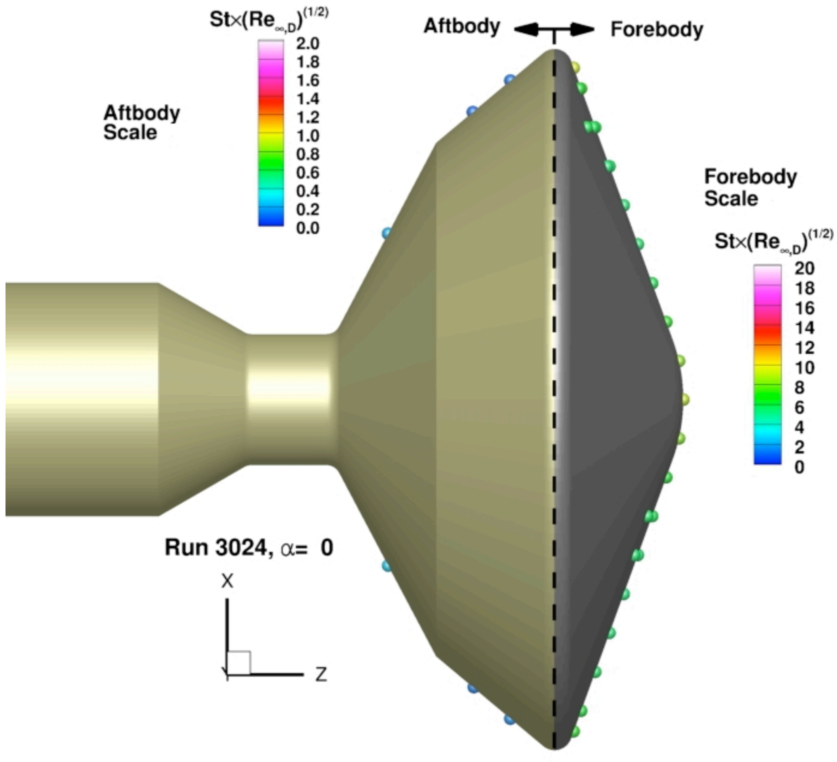


b) **Aftbody**

Figure B - 116. Run 3023 heating data, Mach 10 nozzle, $Re_\infty = 8.5 \times 10^6$/ft, α = 24°.

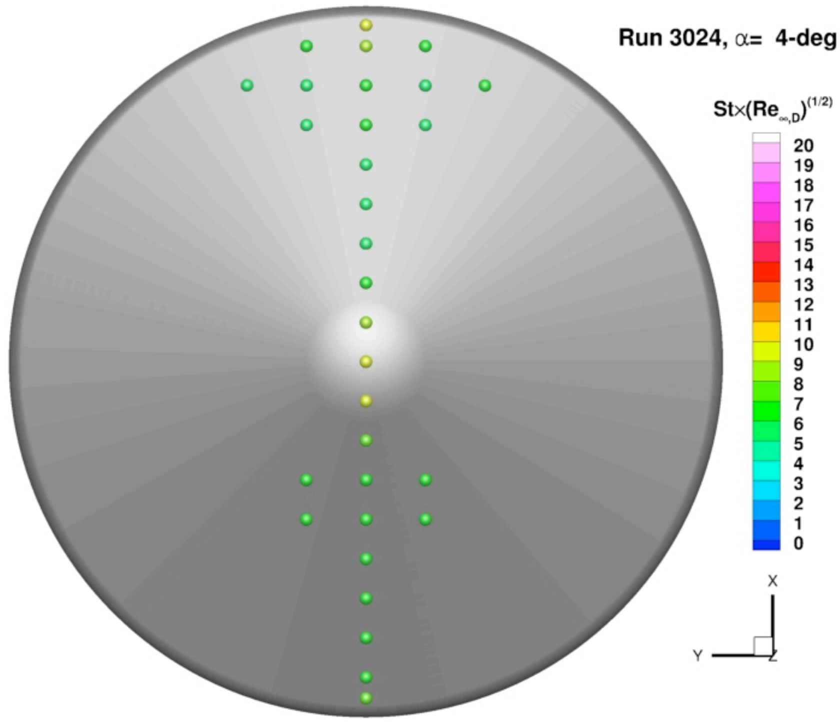


a) **Forebody**

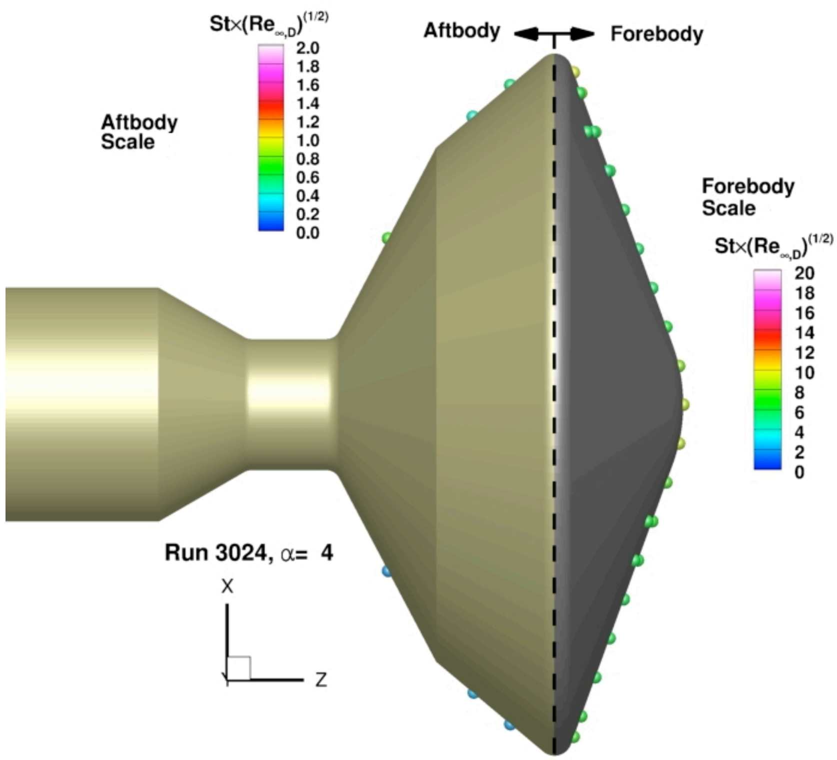


b) **Aftbody**

Figure B - 117. Run 3024 heating data, Mach 10 nozzle, $Re_\infty = 14.4\times10^6$/ft, $\alpha = 0°$.

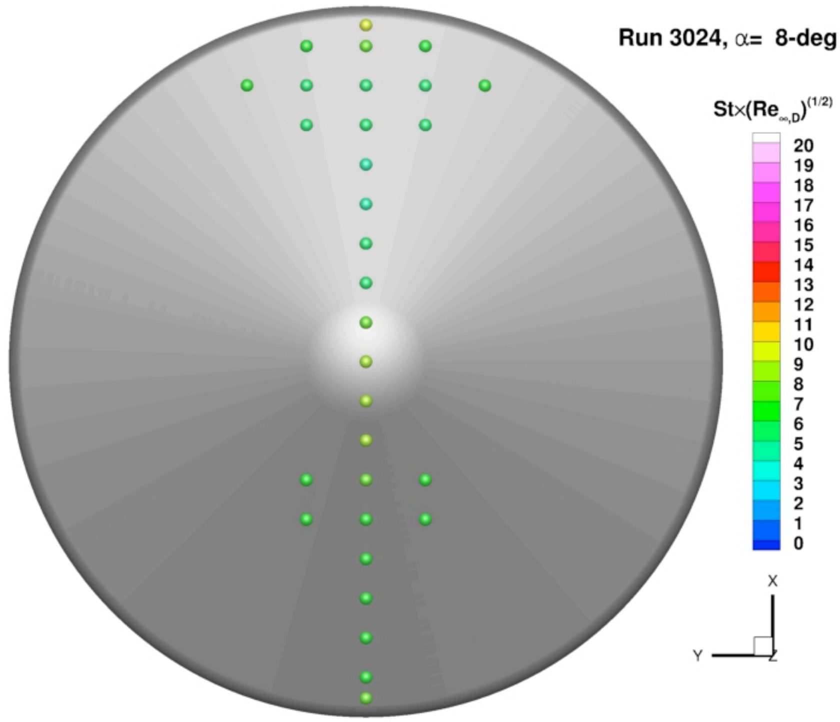


a) **Forebody**

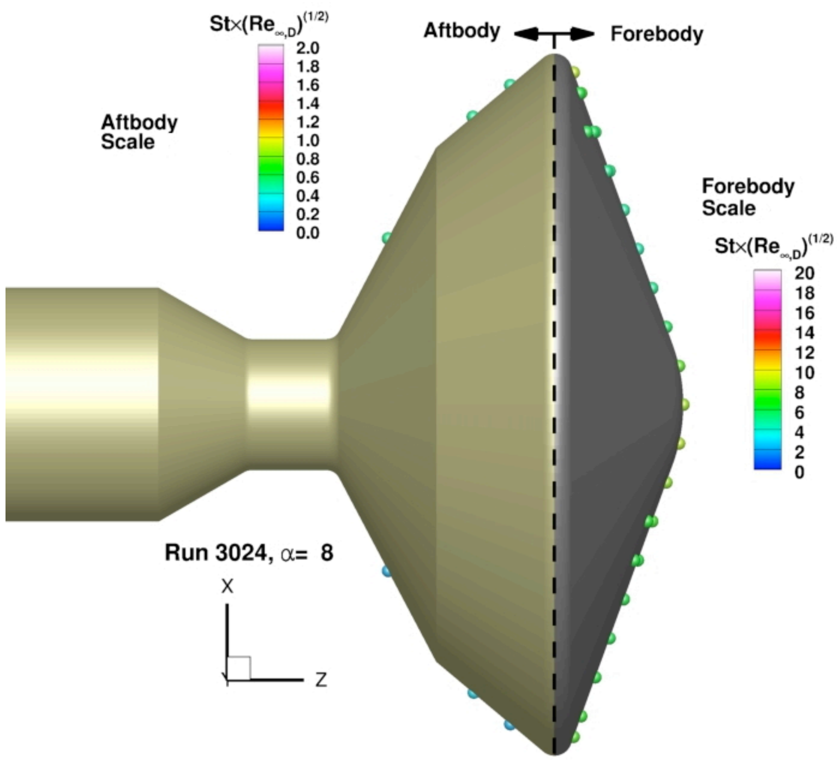


b) **Aftbody**

Figure B - 118. Run 3024 heating data, Mach 10 nozzle, $Re_\infty = 14.4\times10^6$/ft, α = 4°.

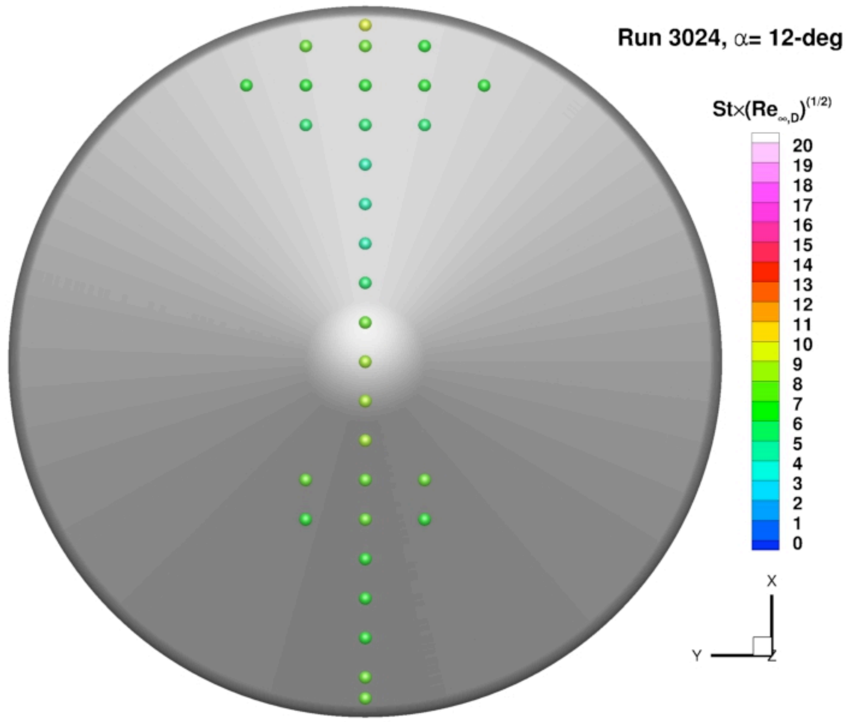


a) **Forebody**

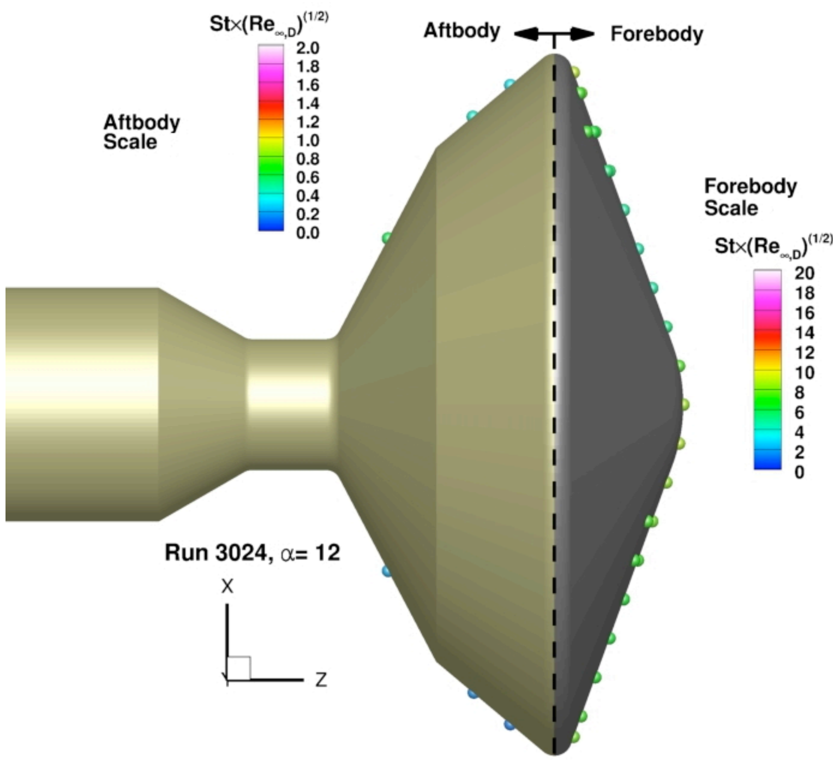


b) **Aftbody**

Figure B - 119. Run 3024 heating data, Mach 10 nozzle, $Re_\infty = 14.4\times10^6$/ft, $\alpha = 8°$.

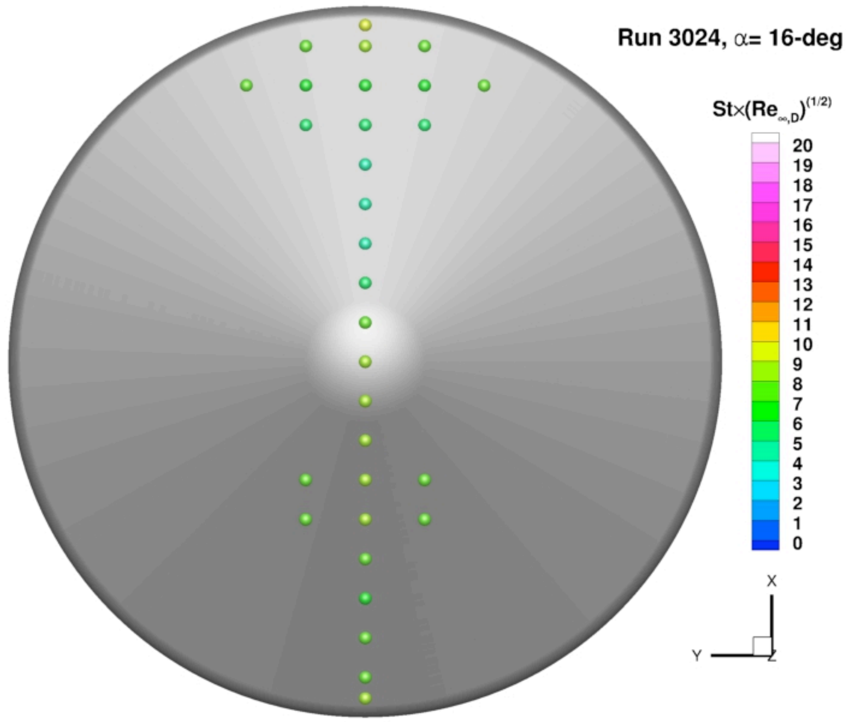


a) **Forebody**

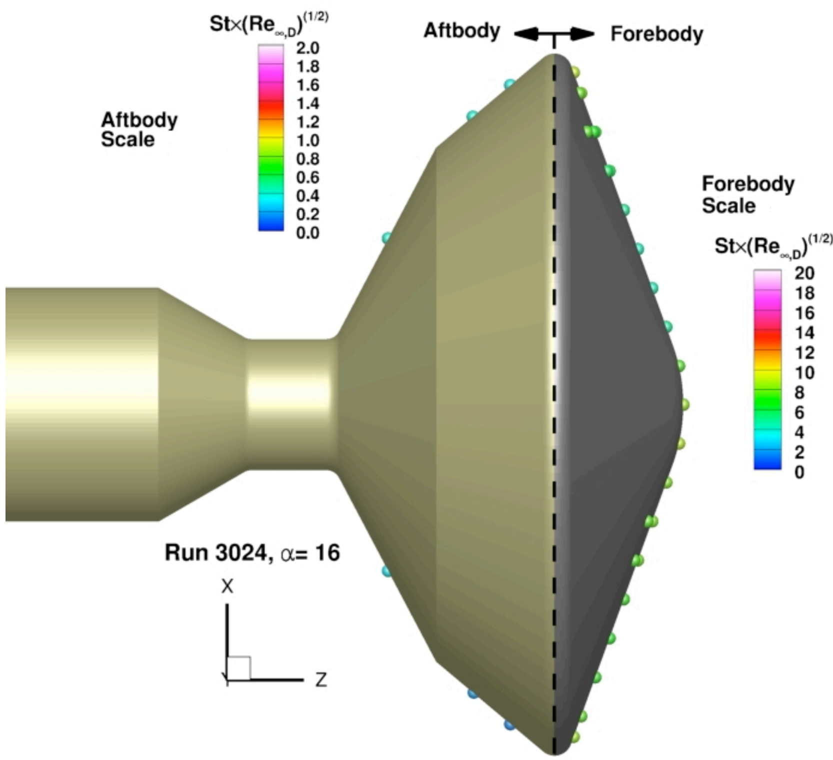


b) **Aftbody**

Figure B - 120. Run 3024 heating data, Mach 10 nozzle, $Re_\infty = 14.4\times10^6$/ft, α = 12°.

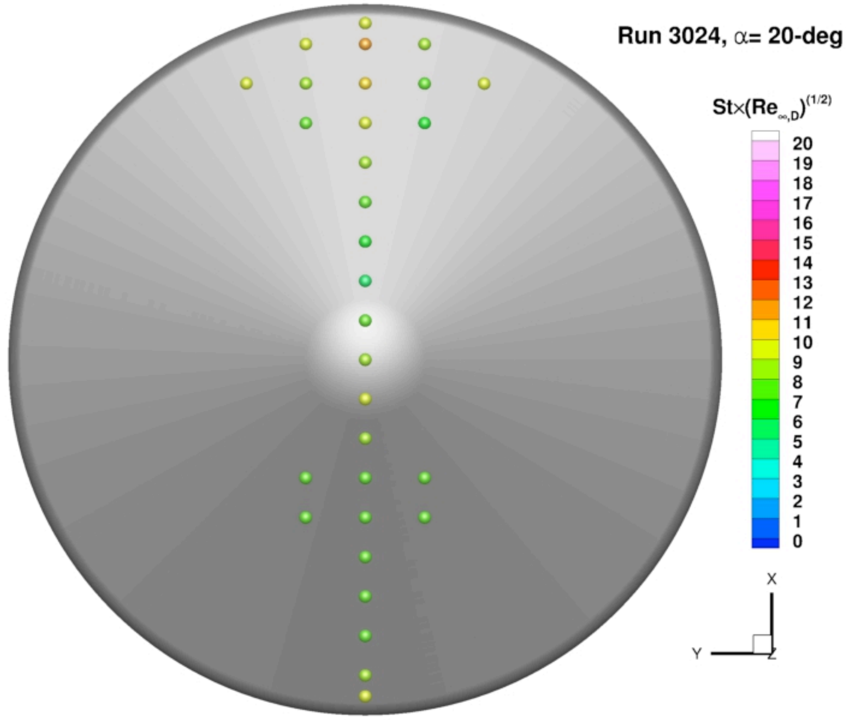


a) **Forebody**

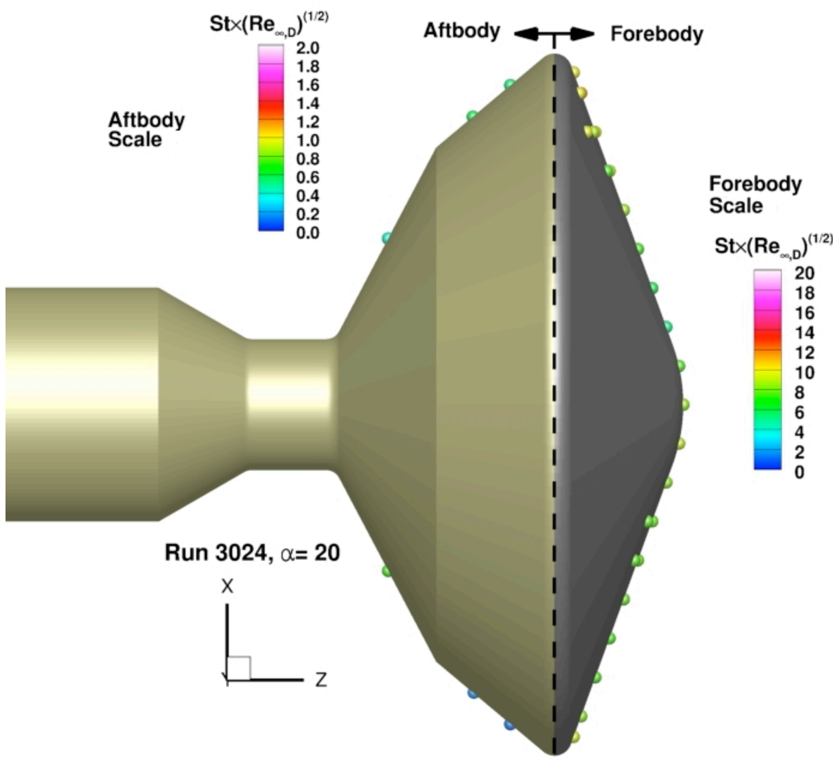


b) **Aftbody**

Figure B - 121. Run 3024 heating data, Mach 10 nozzle, $Re_\infty = 14.4\times10^6$/ft, α = 16°.

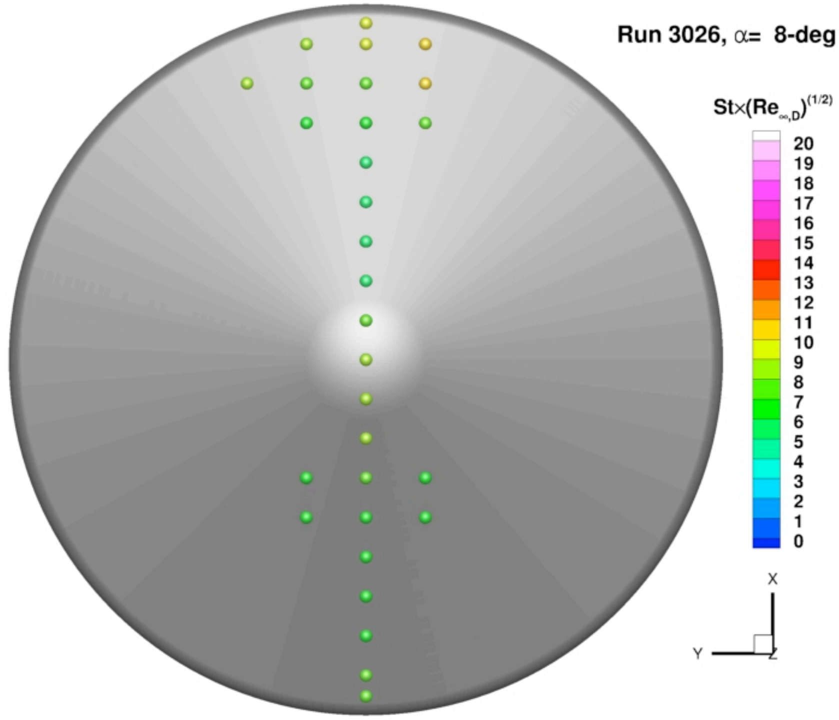


a) **Forebody**

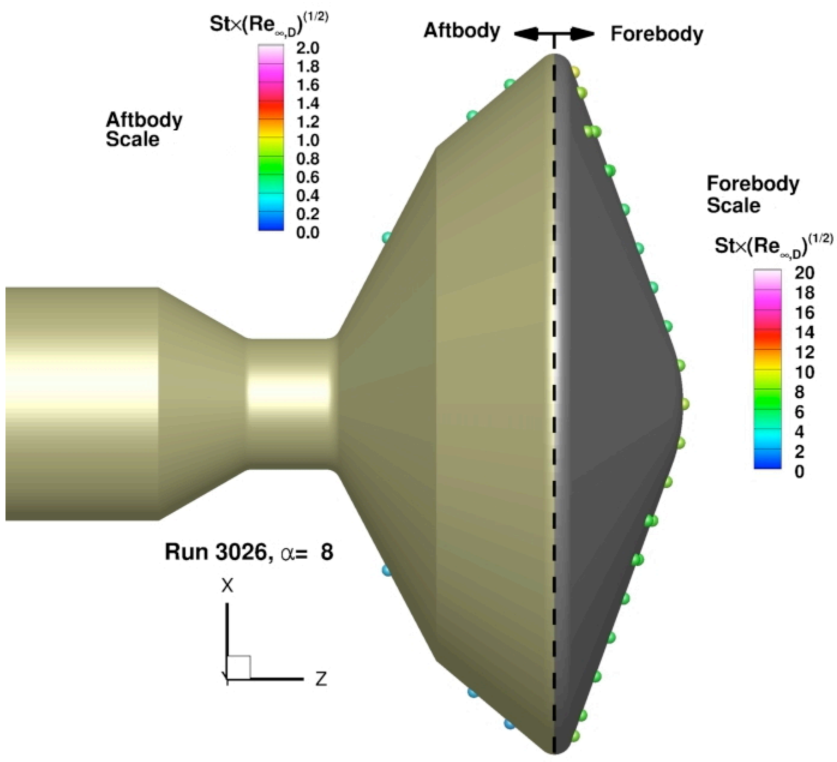


b) **Aftbody**

Figure B - 122. Run 3024 heating data, Mach 10 nozzle, $Re_\infty = 14.4\times10^6$/ft, α = 20°.

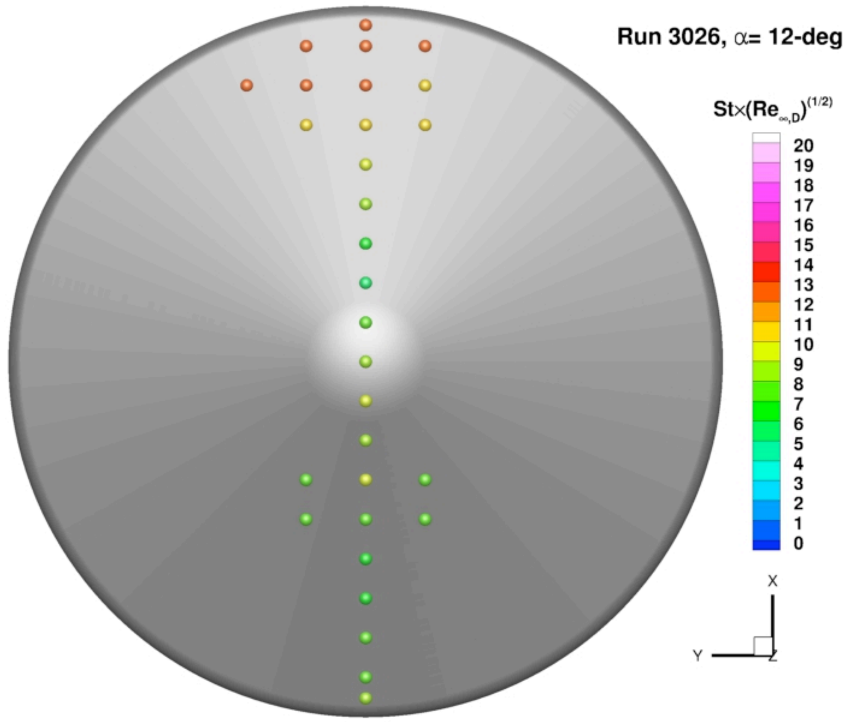


a) **Forebody**

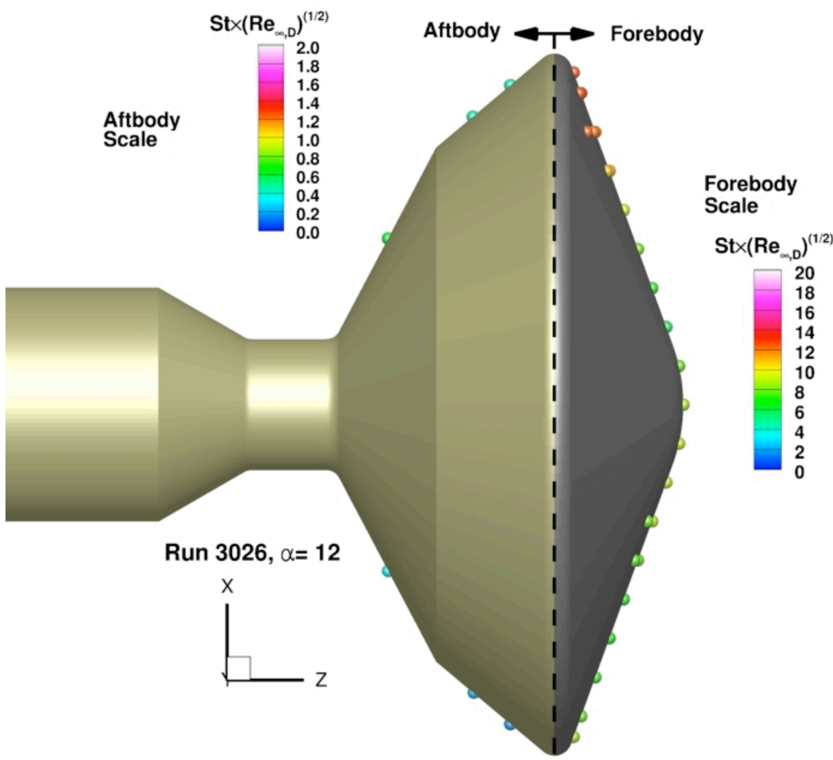


b) **Aftbody**

Figure B - 123. Run 3026 heating data, Mach 10 nozzle, $Re_\infty = 18.5\times10^6$/ft, $\alpha = 8°$.

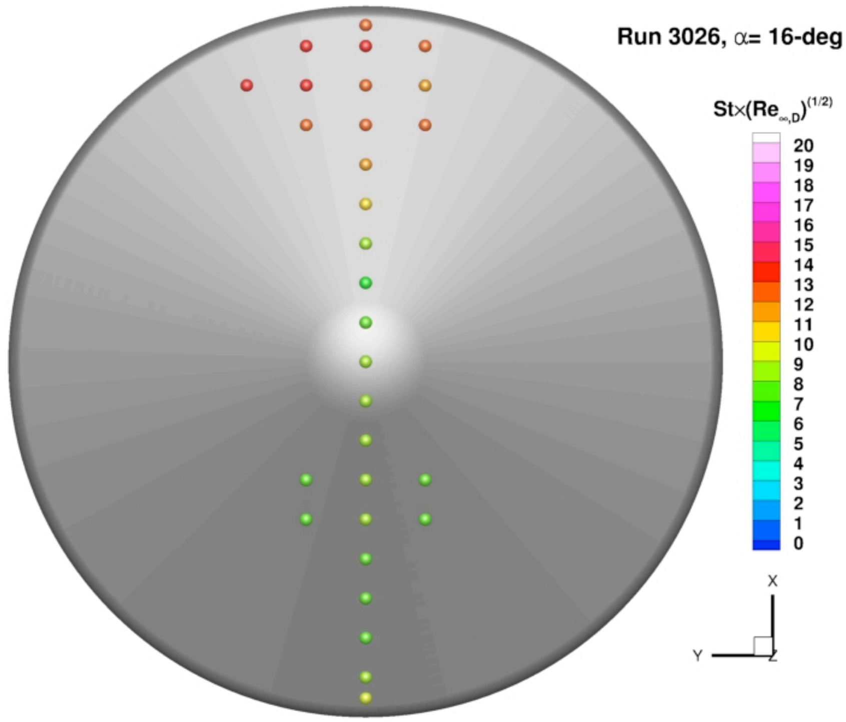


a) **Forebody**

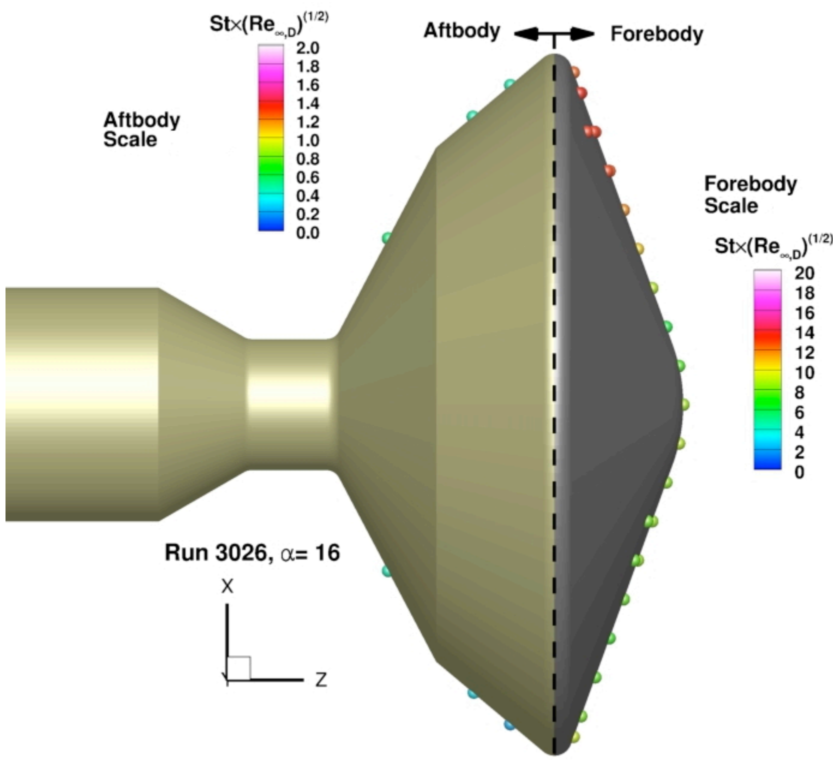


b) **Aftbody**

Figure B - 124. Run 3026 heating data, Mach 10 nozzle, $Re_\infty = 18.5 \times 10^6$/ft, $\alpha = 12°$.

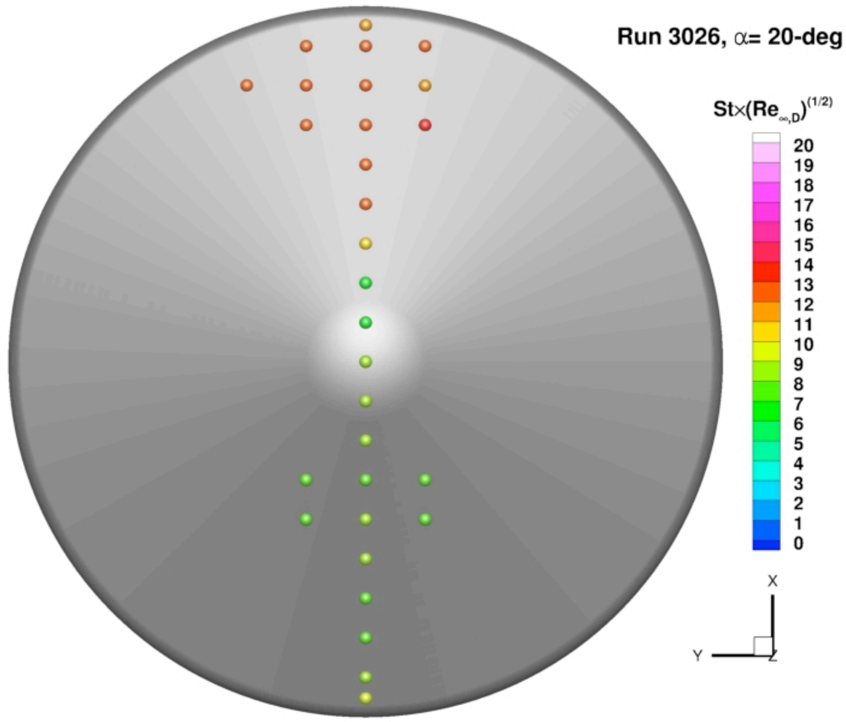


a) **Forebody**

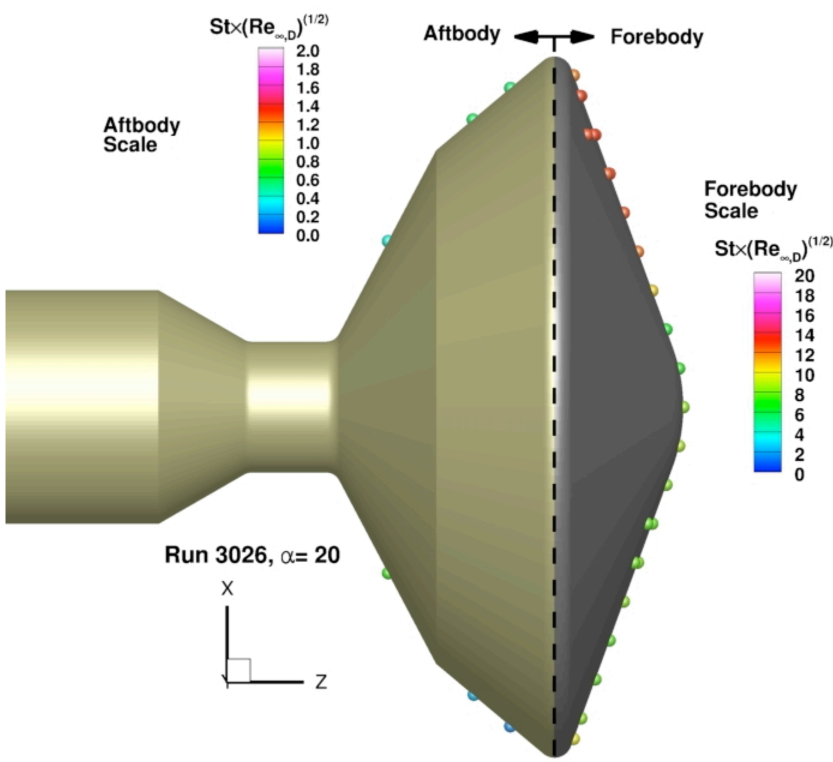


b) **Aftbody**

Figure B - 125. Run 3026 heating data, Mach 10 nozzle, $Re_\infty = 18.5\times10^6$/ft, α = 16°.

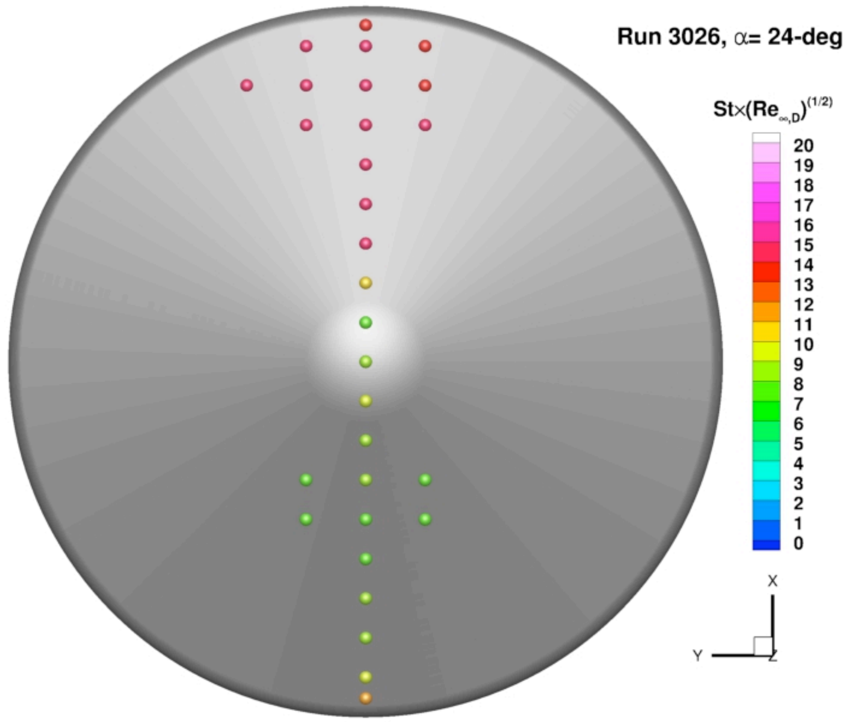


a) **Forebody**

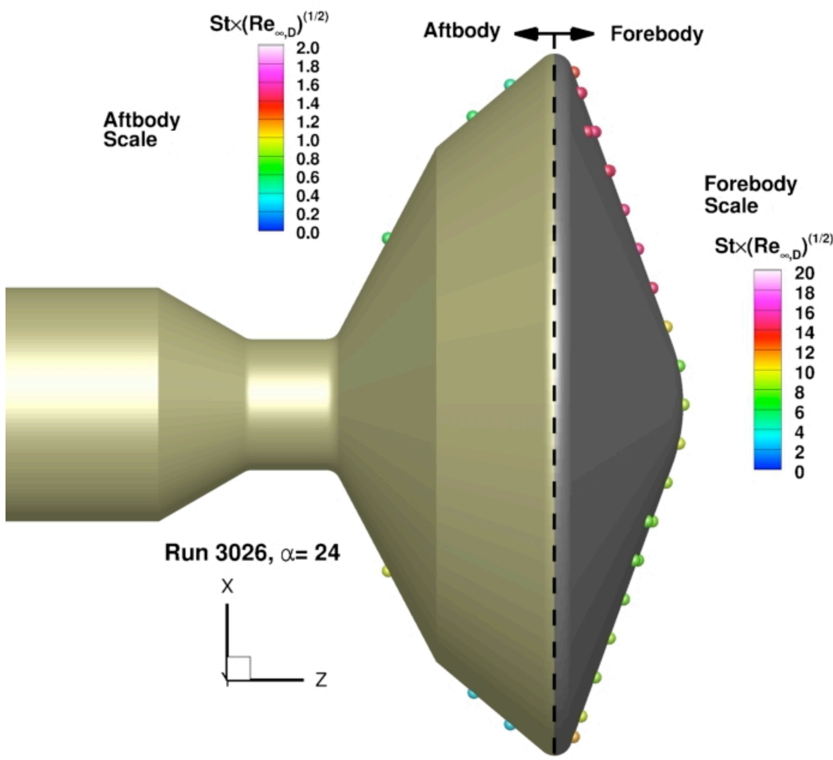


b) **Aftbody**

Figure B - 126. Run 3026 heating data, Mach 10 nozzle, $Re_\infty = 18.5\times10^6$/ft, α = 20°.

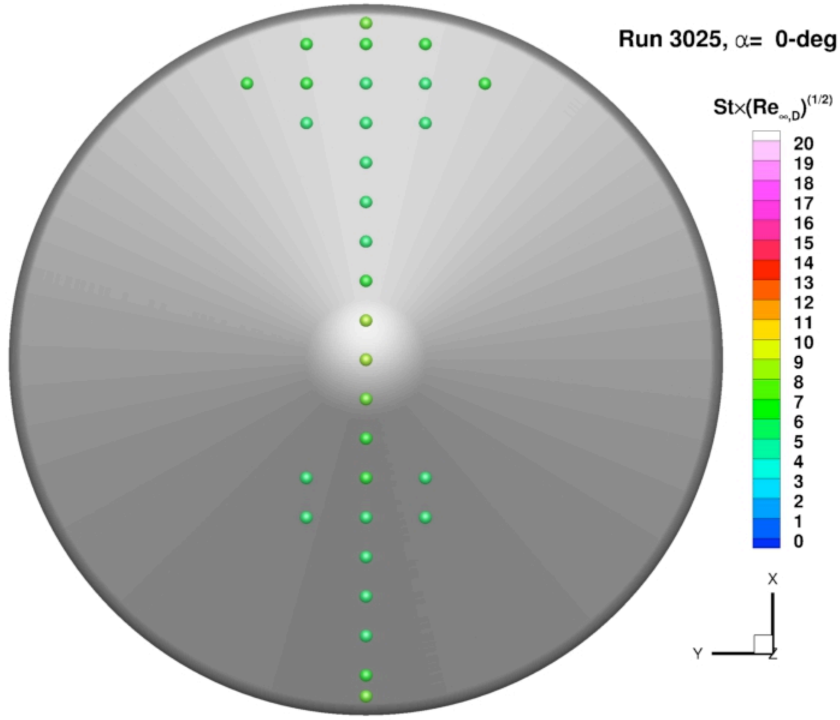


a) **Forebody**

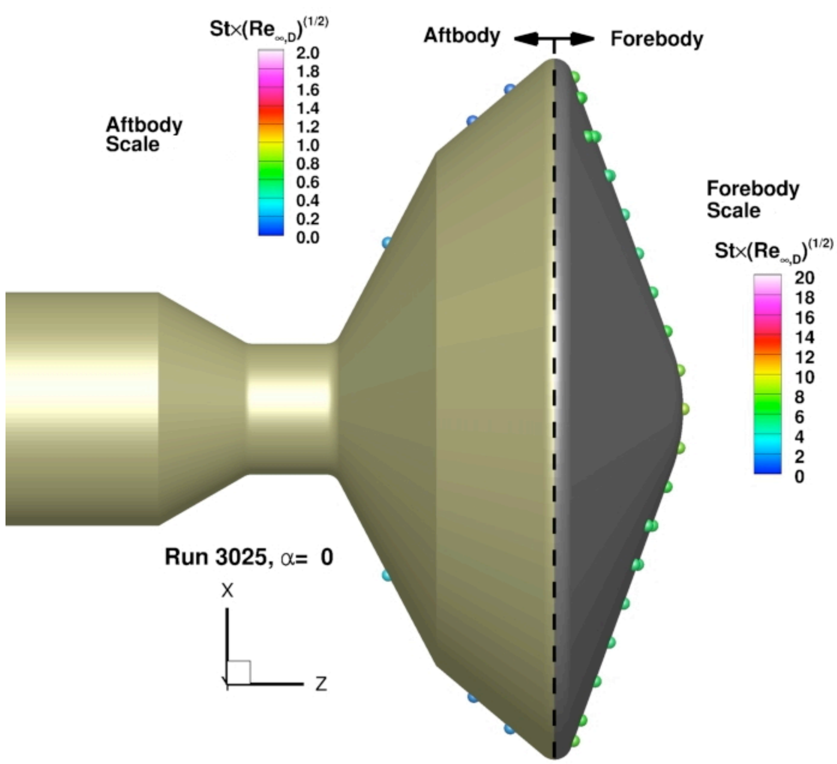


b) **Aftbody**

Figure B - 127. Run 3026 heating data, Mach 10 nozzle, $Re_\infty = 18.5 \times 10^6$/ft, α = 24°.

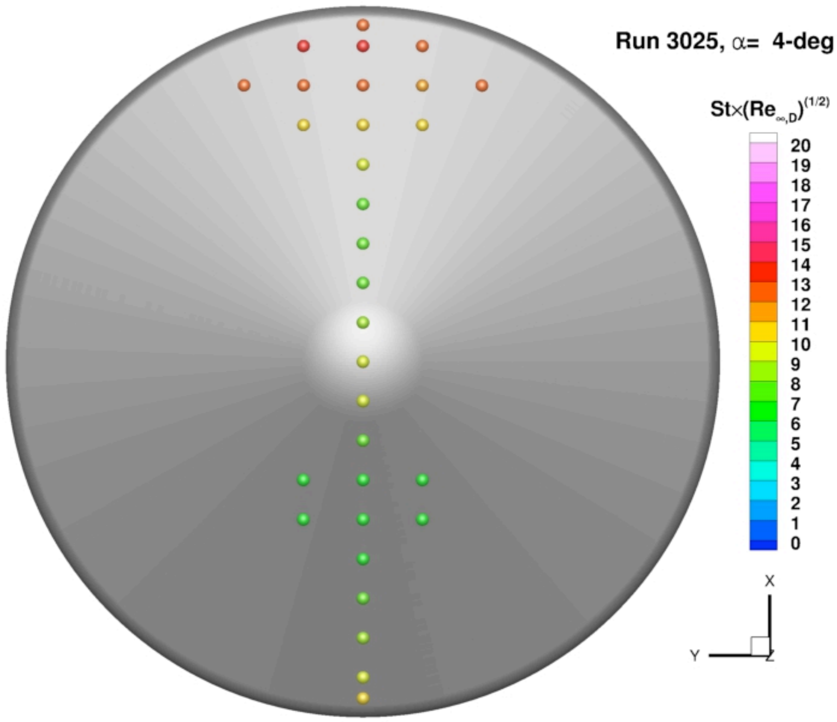


a) **Forebody**

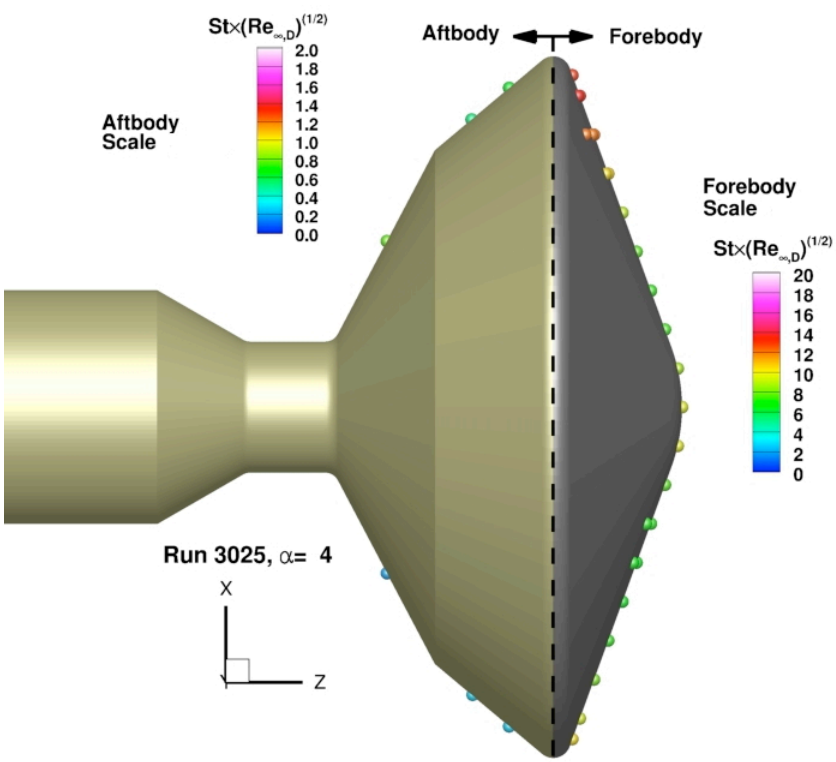


b) **Aftbody**

Figure B - 128. Run 3025 heating data, Mach 10 nozzle, $Re_\infty = 19.2\times10^6$/ft, $\alpha = 0°$.

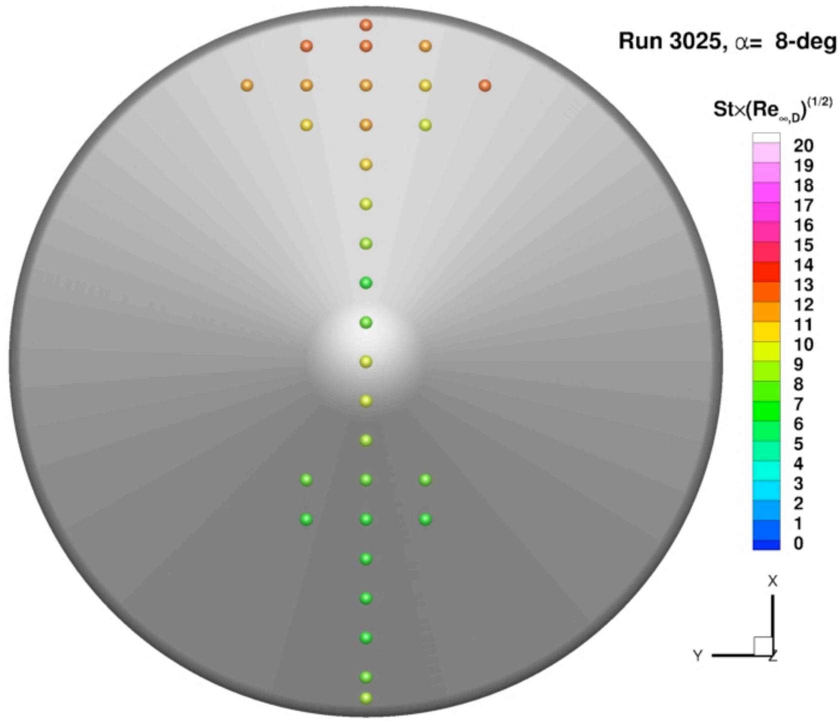


a) **Forebody**

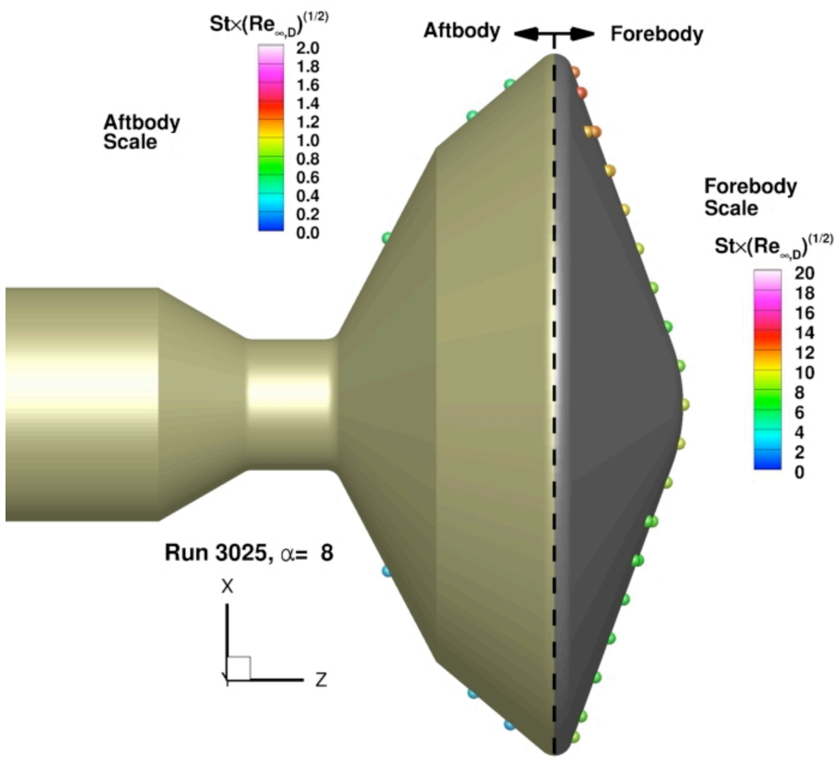


b) **Aftbody**

Figure B - 129. Run 3025 heating data, Mach 10 nozzle, $Re_\infty = 19.2\times10^6$/ft, $\alpha = 4°$.

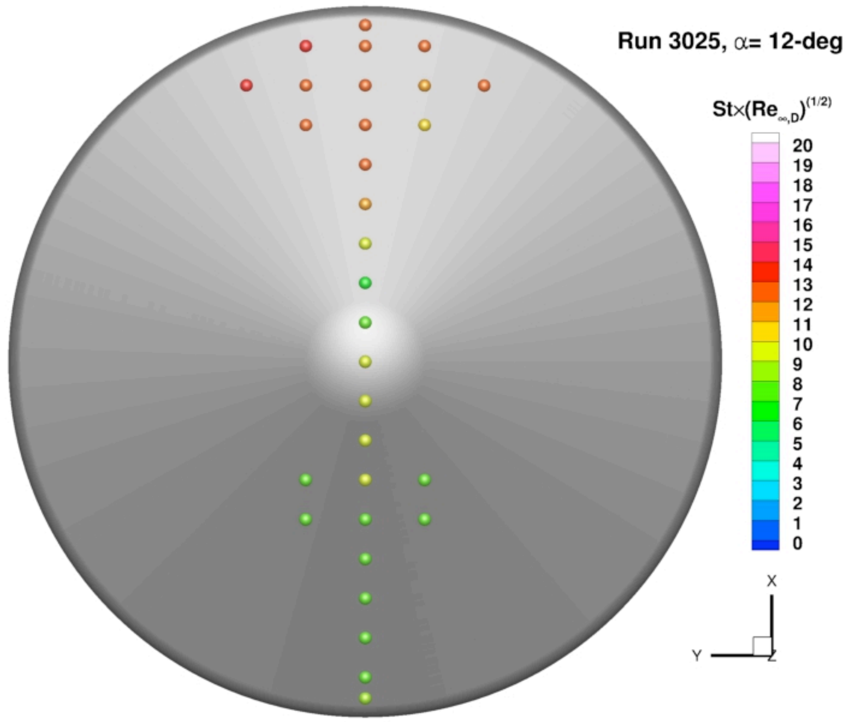


a) **Forebody**

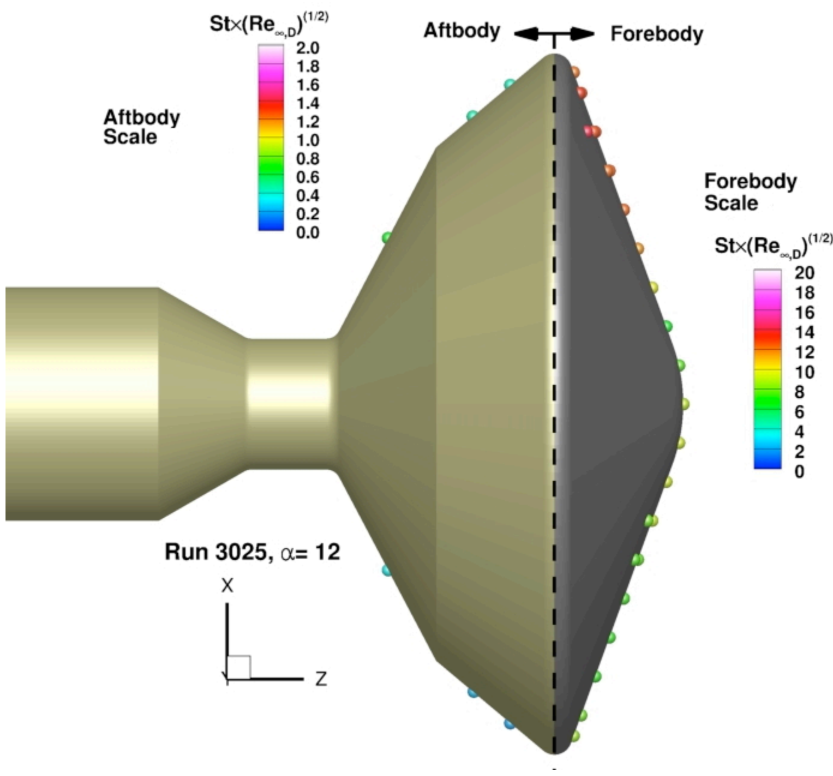


b) **Aftbody**

Figure B - 130. Run 3025 heating data, Mach 10 nozzle, $Re_\infty = 19.2\times10^6$/ft, $\alpha = 8°$.

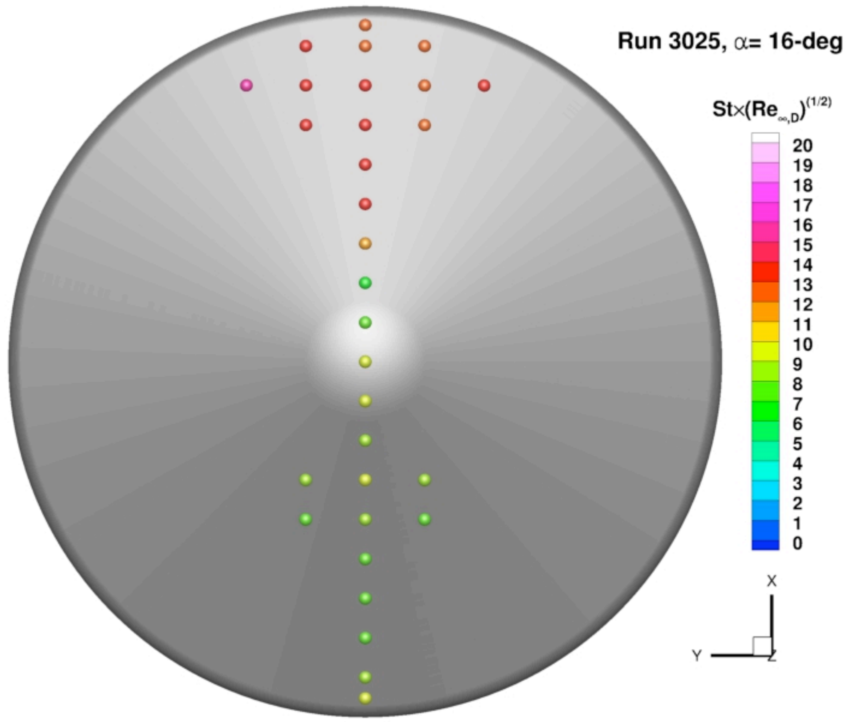


a) **Forebody**

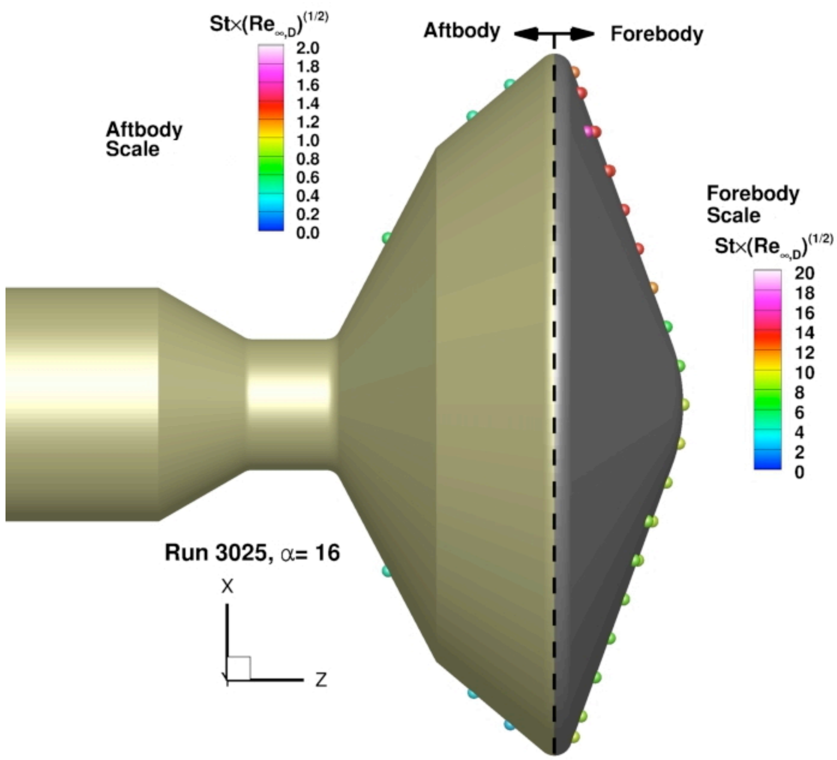


b) **Aftbody**

Figure B - 131. Run 3025 heating data, Mach 10 nozzle, $Re_\infty = 19.2\times10^6$/ft, α = 12°.

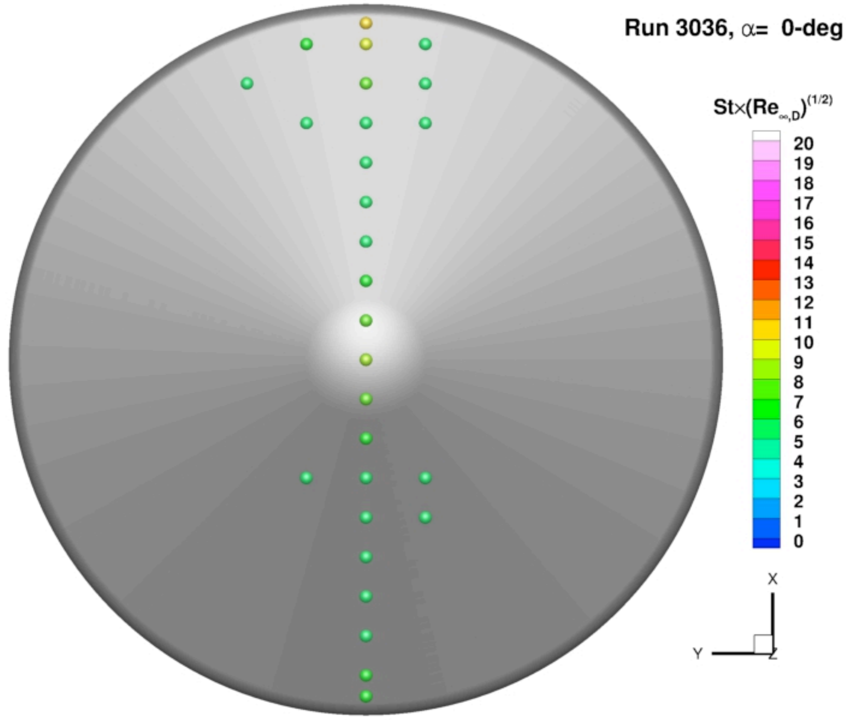


a) **Forebody**

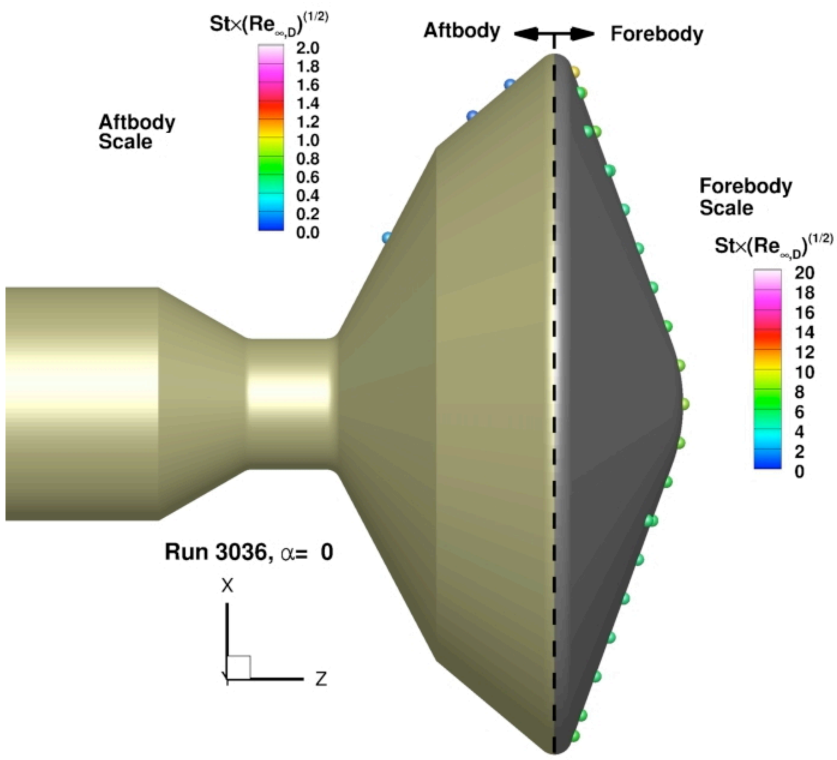


b) **Aftbody**

Figure B - 132. Run 3025 heating data, Mach 10 nozzle, $Re_\infty = 19.2\times10^6$/ft, α = 16°.

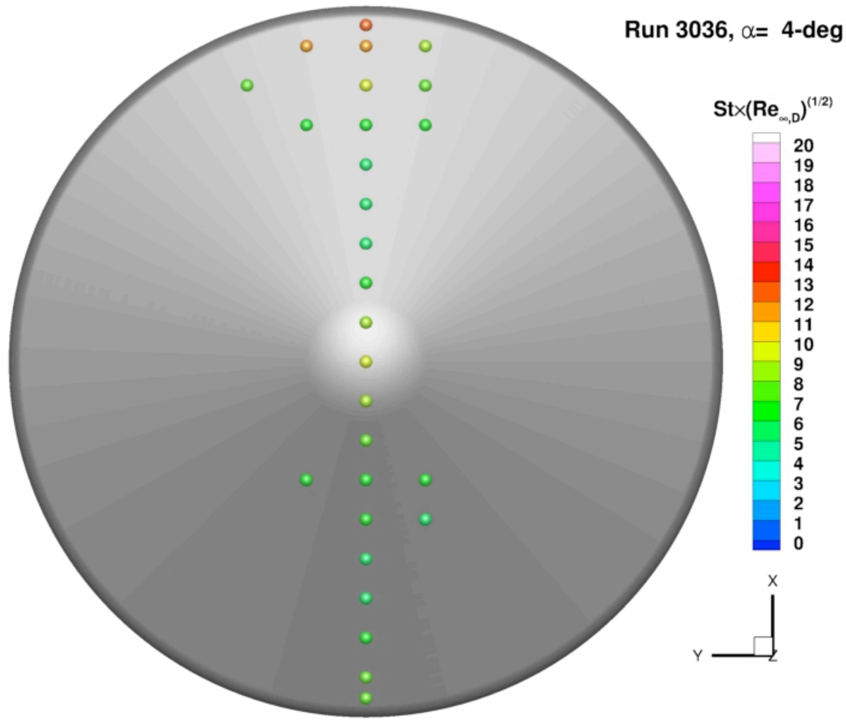


a) **Forebody**

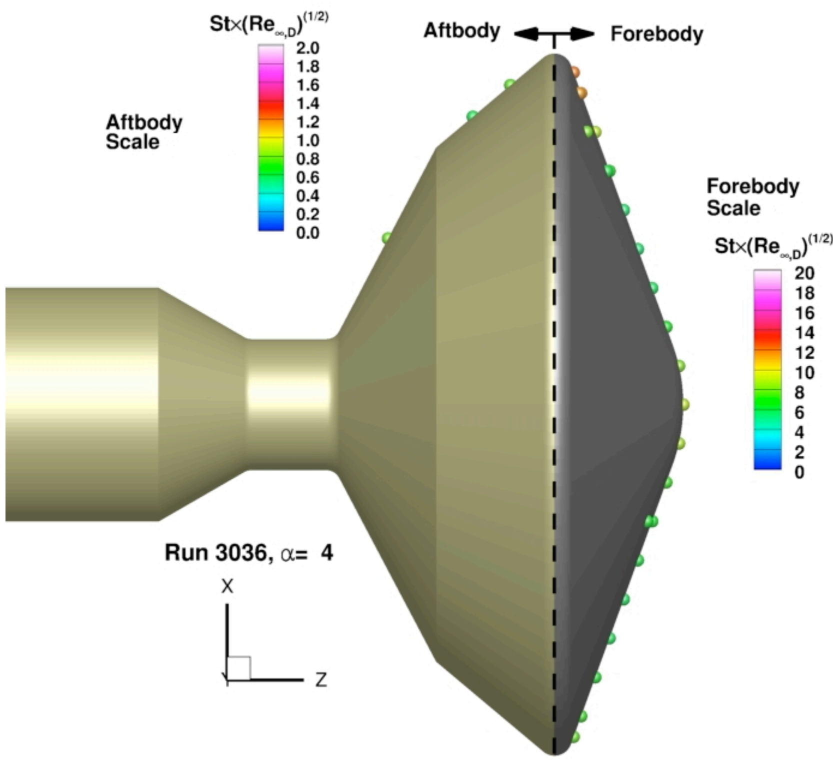


b) **Aftbody**

Figure B - 133. Run 3036 heating data, Mach 10 nozzle, $Re_\infty = 20.1\times10^6$/ft, $\alpha = 0°$.

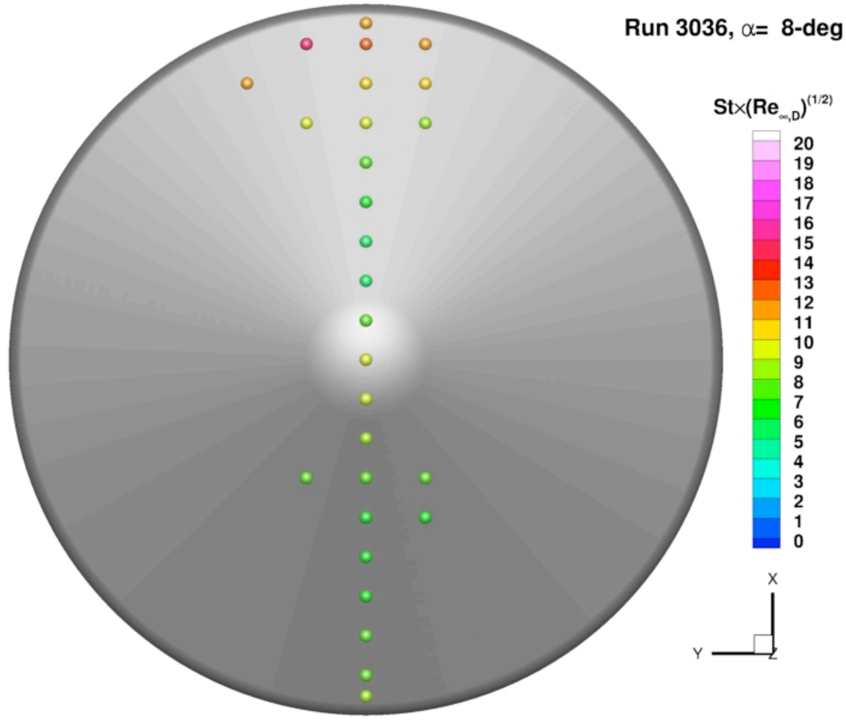


a) **Forebody**

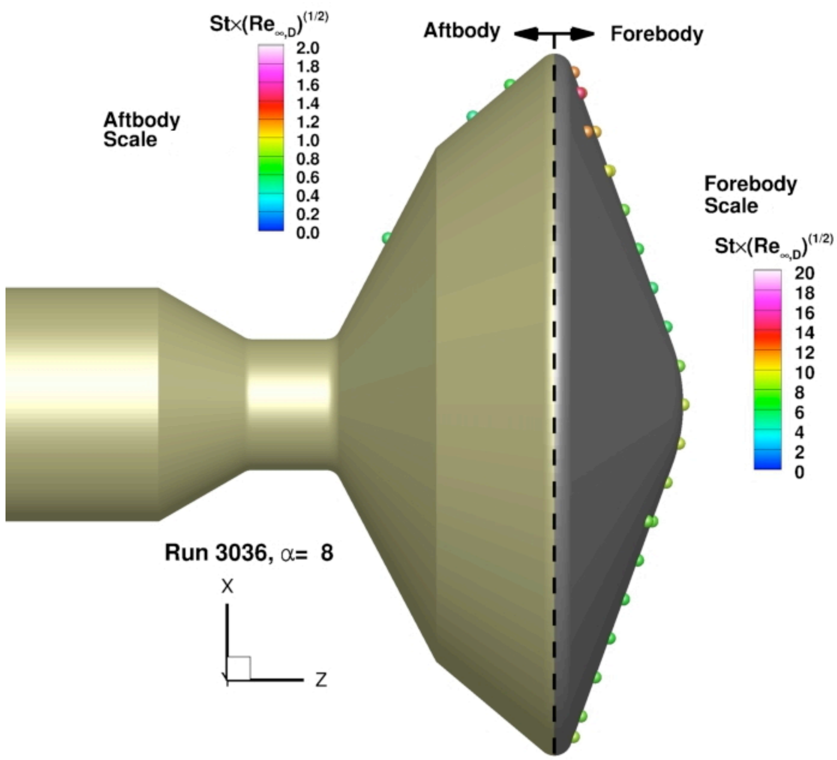


b) **Aftbody**

Figure B - 134. Run 3036 heating data, Mach 10 nozzle, $Re_\infty = 20.1\times10^6$/ft, α = 4°.

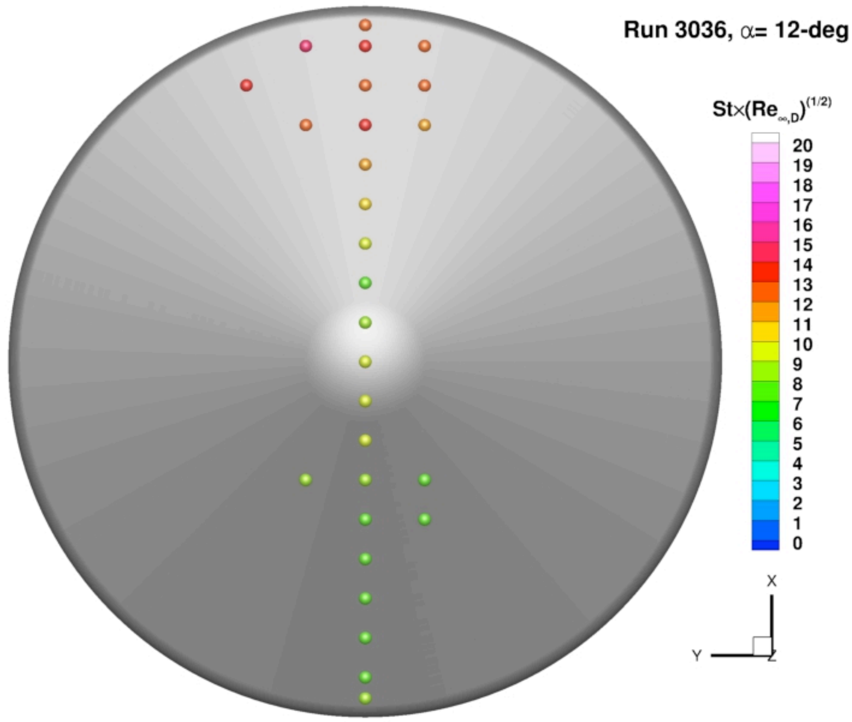


a) **Forebody**

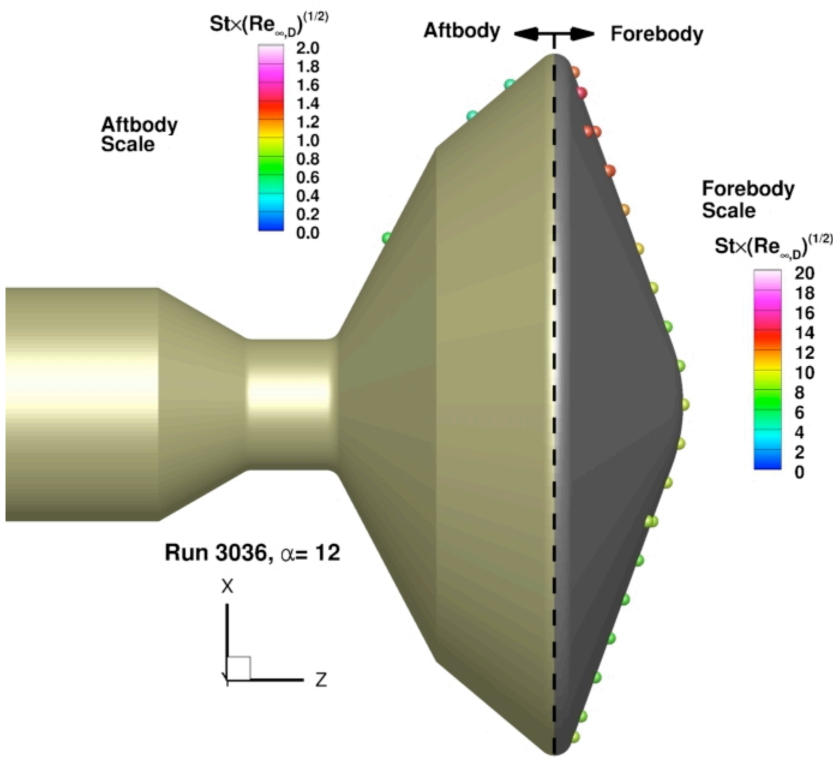


b) **Aftbody**

Figure B - 135. Run 3036 heating data, Mach 10 nozzle, $Re_\infty = 20.1\times10^6$/ft, $\alpha = 8°$.

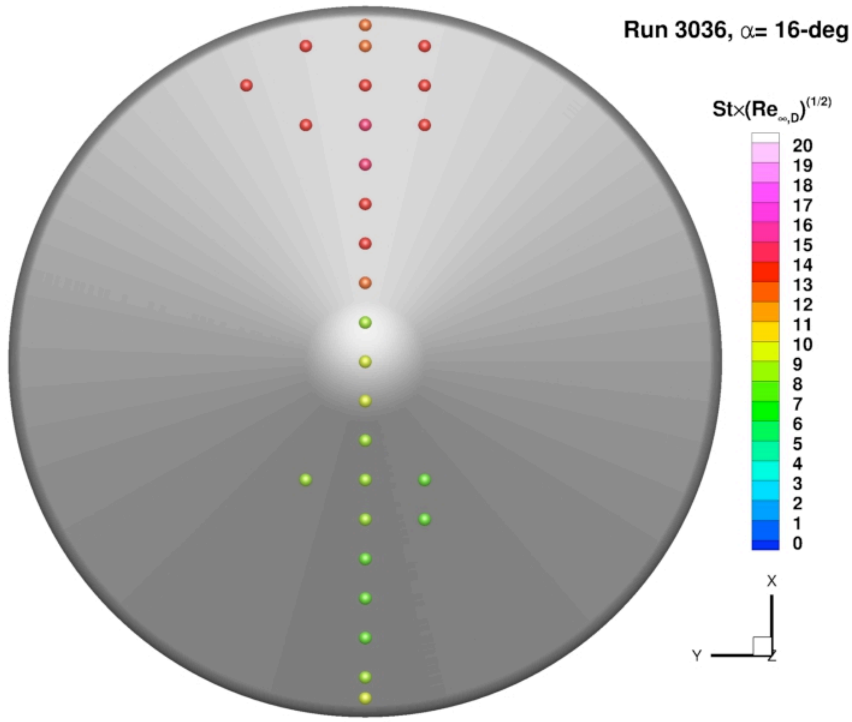


a) **Forebody**

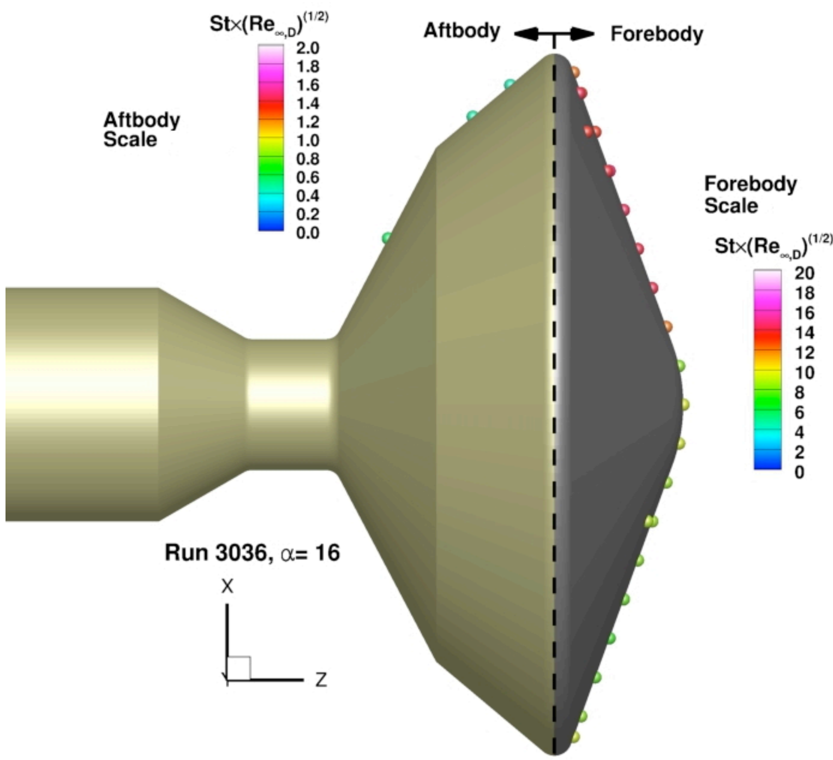


b) **Aftbody**

Figure B - 136. Run 3036 heating data, Mach 10 nozzle, $Re_\infty = 20.1\times10^6$/ft, α = 12°.



a) **Forebody**



b) **Aftbody**

Figure B - 137. Run 3036 heating data, Mach 10 nozzle, $Re_\infty = 20.1\times10^6$/ft, α = 16°.

Appendix C: Tabulated Heating Data

Heating data from the test are tabulated in this Appendix in Table C - 1 trough Table C - 137. For continuous pitch-sweep runs, data are provided at 4° angle-of-attack increments. Variable listing with "Δ" prefixes in these tables represent the standard-deviation of the respective variable over the time-averaging window of the angle-of-attack increment.

Table C - 1. Run 3028 data, Mach 8 nozzle, $Re_\infty = 4.1\times10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	T_w (K)	ΔT_w (K)
A03	3.20E-03	3.21E-04	4.764	0.482	0.0595	0.0060	307.6	1.08
B02	3.31E-03	3.32E-04	4.923	0.497	0.0615	0.0062	307.8	1.18
B03	3.20E-03	3.23E-04	4.752	0.480	0.0594	0.0060	307.5	1.11
B04	3.05E-03	3.11E-04	4.535	0.459	0.0567	0.0057	307.0	1.10
B13	3.59E-03	3.63E-04	5.340	0.543	0.0667	0.0067	308.9	1.26
B14	3.38E-03	3.42E-04	5.033	0.511	0.0629	0.0064	308.2	1.18
C01	3.53E-03	3.57E-04	5.256	0.537	0.0656	0.0066	309.0	1.25
C02	3.29E-03	3.32E-04	4.888	0.496	0.0611	0.0062	307.8	1.17
C03	3.16E-03	3.22E-04	4.706	0.478	0.0588	0.0060	308.1	1.12
C04	3.09E-03	3.16E-04	4.591	0.468	0.0573	0.0058	307.2	1.13
C05	3.04E-03	3.11E-04	4.527	0.460	0.0565	0.0058	307.0	1.12
C06	3.19E-03	3.25E-04	4.743	0.479	0.0592	0.0060	307.5	1.15
C07	3.51E-03	3.55E-04	5.215	0.525	0.0651	0.0066	308.7	1.27
C08	4.03E-03	4.08E-04	5.993	0.604	0.0749	0.0076	310.5	1.45
C09	4.94E-03	5.05E-04	7.349	0.742	0.0918	0.0093	314.1	1.82
C10	5.43E-03	5.46E-04	8.082	0.811	0.1010	0.0101	315.7	1.96
C11	5.03E-03	5.10E-04	7.484	0.750	0.0935	0.0094	314.3	1.85
C13	3.72E-03	3.75E-04	5.530	0.556	0.0691	0.0069	309.9	1.30
C14	3.42E-03	3.47E-04	5.082	0.514	0.0635	0.0064	308.3	1.22
C15	3.25E-03	3.30E-04	4.827	0.491	0.0603	0.0061	307.7	1.13
C16	3.14E-03	3.19E-04	4.665	0.475	0.0583	0.0059	307.3	1.10
C17	3.15E-03	3.19E-04	4.682	0.476	0.0585	0.0059	307.4	1.11
C18	3.29E-03	3.34E-04	4.897	0.498	0.0612	0.0062	307.8	1.13
C19	3.50E-03	3.54E-04	5.207	0.533	0.0650	0.0066	308.9	1.25
D02	3.38E-03	3.40E-04	5.027	0.508	0.0628	0.0063	308.0	1.18
D03	3.17E-03	3.20E-04	4.716	0.478	0.0589	0.0059	307.4	1.11
D13	3.64E-03	3.70E-04	5.406	0.545	0.0675	0.0068	309.1	1.31
D14	3.47E-03	3.51E-04	5.157	0.519	0.0644	0.0065	308.5	1.22
E03	3.22E-03	3.28E-04	4.785	0.485	0.0598	0.0061	307.5	1.18
F20	5.76E-05	7.78E-06	0.086	0.011	0.0011	0.0001	296.4	0.12
F21	5.39E-05	6.65E-06	0.080	0.010	0.0010	0.0001	295.3	0.12
F22	1.11E-04	1.58E-05	0.166	0.023	0.0021	0.0003	296.6	0.09
F23	1.55E-04	2.29E-05	0.231	0.036	0.0029	0.0004	296.8	0.25
F24	7.17E-05	1.06E-05	0.107	0.016	0.0013	0.0002	296.5	0.18
F25	8.82E-05	1.28E-05	0.131	0.020	0.0016	0.0002	296.6	0.18

Table C - 2. Run 3028 data, Mach 8 nozzle, $Re_\infty = 4.1\times10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	T_w (K)	ΔT_w (K)
A03	2.97E-03	2.97E-04	4.321	0.432	0.0547	0.0055	311.3	0.15
B02	3.08E-03	3.08E-04	4.487	0.449	0.0568	0.0057	311.7	0.18
B03	2.99E-03	2.99E-04	4.359	0.436	0.0551	0.0055	311.4	0.18
B04	2.89E-03	2.90E-04	4.215	0.422	0.0533	0.0053	310.8	0.00
B13	3.85E-03	3.85E-04	5.600	0.560	0.0708	0.0071	314.1	0.24
B14	3.70E-03	3.71E-04	5.389	0.540	0.0682	0.0068	313.1	0.26
C01	3.18E-03	3.18E-04	4.631	0.463	0.0586	0.0059	313.2	0.11
C02	3.06E-03	3.06E-04	4.460	0.446	0.0564	0.0056	311.7	0.18
C03	2.98E-03	2.98E-04	4.333	0.434	0.0548	0.0055	312.0	0.18
C04	2.93E-03	2.93E-04	4.264	0.427	0.0539	0.0054	311.0	0.00
C05	2.93E-03	2.93E-04	4.260	0.427	0.0539	0.0054	310.8	0.18
C06	3.06E-03	3.06E-04	4.456	0.446	0.0564	0.0056	311.6	0.15
C07	3.33E-03	3.34E-04	4.855	0.486	0.0614	0.0061	313.0	0.11
C08	3.82E-03	3.82E-04	5.558	0.556	0.0703	0.0070	315.5	0.21
C09	4.83E-03	4.83E-04	7.028	0.704	0.0889	0.0089	320.6	0.24
C10	5.44E-03	5.44E-04	7.921	0.792	0.1002	0.0100	323.1	0.26
C11	5.45E-03	5.46E-04	7.942	0.796	0.1005	0.0101	321.9	0.38
C13	4.08E-03	4.09E-04	5.935	0.595	0.0751	0.0075	315.4	0.28
C14	3.74E-03	3.75E-04	5.445	0.546	0.0689	0.0069	313.3	0.21
C15	3.50E-03	3.51E-04	5.098	0.511	0.0645	0.0065	312.4	0.24
C16	3.38E-03	3.39E-04	4.920	0.493	0.0622	0.0062	311.9	0.21
C17	3.40E-03	3.41E-04	4.950	0.497	0.0626	0.0063	311.9	0.15
C18	3.55E-03	3.57E-04	5.175	0.520	0.0655	0.0066	312.5	0.21
C19	3.74E-03	3.77E-04	5.452	0.548	0.0690	0.0069	314.1	0.21
D02	3.10E-03	3.10E-04	4.513	0.452	0.0571	0.0057	311.9	0.11
D03	2.93E-03	2.94E-04	4.273	0.428	0.0540	0.0054	311.2	0.11
D13	3.98E-03	4.00E-04	5.794	0.582	0.0733	0.0074	314.5	0.26
D14	3.76E-03	3.76E-04	5.473	0.548	0.0692	0.0069	313.6	0.28
E03	2.97E-03	2.97E-04	4.323	0.433	0.0547	0.0055	311.3	0.11
F20	2.46E-04	2.57E-05	0.359	0.037	0.0045	0.0005	296.8	0.08
F21	1.51E-04	1.78E-05	0.220	0.026	0.0028	0.0003	295.5	0.11
F22	3.29E-04	3.46E-05	0.479	0.050	0.0061	0.0006	297.2	0.00
F23	6.55E-05	7.89E-06	0.095	0.011	0.0012	0.0001	296.8	0.21
F24	7.23E-05	8.44E-06	0.105	0.012	0.0013	0.0002	296.6	0.21
F25	4.95E-05	5.61E-06	0.072	0.008	0.0009	0.0001	296.6	0.15

Table C - 3. Run 3028 data, Mach 8 nozzle, $Re_\infty = 4.1\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	T_w (K)	ΔT_w (K)
A03	2.82E-03	2.83E-04	4.052	0.407	0.0516	0.0052	313.0	0.10
B02	2.88E-03	2.89E-04	4.147	0.416	0.0529	0.0053	313.4	0.00
B03	2.81E-03	2.81E-04	4.035	0.404	0.0514	0.0052	313.0	0.15
B04	2.75E-03	2.75E-04	3.949	0.396	0.0503	0.0050	312.4	0.00
B13	4.06E-03	4.07E-04	5.839	0.585	0.0744	0.0075	317.3	0.26
B14	3.77E-03	3.77E-04	5.419	0.542	0.0691	0.0069	316.1	0.28
C01	2.99E-03	3.01E-04	4.295	0.433	0.0547	0.0055	315.0	0.15
C02	2.91E-03	2.94E-04	4.181	0.422	0.0533	0.0054	313.4	0.10
C03	2.84E-03	2.86E-04	4.087	0.412	0.0521	0.0052	313.7	0.10
C04	2.82E-03	2.84E-04	4.061	0.409	0.0518	0.0052	312.7	0.18
C05	2.80E-03	2.82E-04	4.029	0.405	0.0514	0.0052	312.6	0.18
C06	2.94E-03	2.95E-04	4.220	0.424	0.0538	0.0054	313.4	0.23
C07	3.16E-03	3.17E-04	4.542	0.456	0.0579	0.0058	314.9	0.00
C08	3.60E-03	3.61E-04	5.177	0.518	0.0660	0.0066	317.6	0.26
C09	4.68E-03	4.68E-04	6.731	0.673	0.0858	0.0086	323.7	0.23
C10	5.40E-03	5.40E-04	7.760	0.776	0.0989	0.0099	326.9	0.35
C11	5.61E-03	5.61E-04	8.059	0.807	0.1027	0.0103	326.3	0.35
C13	4.39E-03	4.39E-04	6.312	0.631	0.0805	0.0080	318.9	0.29
C14	3.88E-03	3.89E-04	5.583	0.559	0.0712	0.0071	316.4	0.26
C15	3.65E-03	3.65E-04	5.247	0.525	0.0669	0.0067	315.2	0.26
C16	3.52E-03	3.52E-04	5.055	0.506	0.0644	0.0064	314.6	0.18
C17	3.52E-03	3.52E-04	5.065	0.507	0.0646	0.0065	314.6	0.26
C18	3.76E-03	3.76E-04	5.410	0.541	0.0690	0.0069	315.5	0.21
C19	3.98E-03	3.98E-04	5.715	0.572	0.0729	0.0073	317.4	0.29
D02	2.94E-03	2.95E-04	4.230	0.425	0.0539	0.0054	313.6	0.00
D03	2.84E-03	2.85E-04	4.081	0.410	0.0520	0.0052	312.9	0.18
D13	4.21E-03	4.21E-04	6.053	0.606	0.0772	0.0077	317.8	0.31
D14	3.92E-03	3.92E-04	5.637	0.564	0.0719	0.0072	316.6	0.26
E03	2.84E-03	2.86E-04	4.089	0.411	0.0521	0.0052	313.0	0.10
F20	2.19E-04	2.26E-05	0.315	0.033	0.0040	0.0004	297.1	0.00
F21	2.05E-04	2.06E-05	0.295	0.030	0.0038	0.0004	295.8	0.00
F22	2.75E-04	2.77E-05	0.395	0.040	0.0050	0.0005	297.5	0.10
F23	1.08E-04	1.16E-05	0.155	0.017	0.0020	0.0002	296.9	0.10
F24	9.77E-05	1.31E-05	0.140	0.019	0.0018	0.0002	296.7	0.10
F25	7.19E-05	7.25E-06	0.103	0.010	0.0013	0.0001	296.6	0.18

Table C - 4. Run 3028 data, Mach 8 nozzle, $Re_\infty = 4.1\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	$St\times(ReD)^{(1/2)}$	$\Delta St\times(ReD)^{(1/2)}$	$St\times(ReD)^{(1/5)}$	$\Delta St\times(ReD)^{(1/5)}$	T_w (K)	ΔT_w (K)
A03	2.75E-03	2.75E-04	3.924	0.393	0.0502	0.0050	314.6	0.18
B02	2.81E-03	2.81E-04	4.010	0.402	0.0513	0.0051	315.0	0.14
B03	2.72E-03	2.73E-04	3.879	0.390	0.0496	0.0050	314.6	0.10
B04	2.62E-03	2.62E-04	3.742	0.374	0.0479	0.0048	314.0	0.18
B13	4.37E-03	4.47E-04	6.247	0.638	0.0800	0.0082	320.9	0.32
B14	4.12E-03	4.25E-04	5.878	0.607	0.0752	0.0078	319.4	0.32
C01	2.85E-03	2.86E-04	4.077	0.408	0.0522	0.0052	316.7	0.18
C02	2.79E-03	2.79E-04	3.985	0.399	0.0510	0.0051	315.0	0.14
C03	2.73E-03	2.73E-04	3.892	0.389	0.0498	0.0050	315.2	0.14
C04	2.66E-03	2.66E-04	3.797	0.380	0.0486	0.0049	314.3	0.10
C05	2.62E-03	2.62E-04	3.743	0.374	0.0479	0.0048	314.1	0.18
C06	2.74E-03	2.74E-04	3.917	0.392	0.0501	0.0050	315.0	0.14
C07	2.92E-03	2.92E-04	4.170	0.417	0.0534	0.0053	316.5	0.10
C08	3.32E-03	3.33E-04	4.745	0.475	0.0607	0.0061	319.5	0.00
C09	4.50E-03	4.50E-04	6.431	0.643	0.0823	0.0082	326.7	0.25
C10	5.38E-03	5.39E-04	7.687	0.769	0.0984	0.0098	330.7	0.31
C11	5.71E-03	5.71E-04	8.154	0.816	0.1044	0.0104	330.7	0.37
C13	4.83E-03	4.93E-04	6.900	0.705	0.0883	0.0090	323.1	0.31
C14	4.20E-03	4.27E-04	5.997	0.611	0.0767	0.0078	319.9	0.31
C15	3.85E-03	3.91E-04	5.501	0.559	0.0704	0.0072	318.3	0.31
C16	3.64E-03	3.71E-04	5.204	0.530	0.0666	0.0068	317.4	0.25
C17	3.66E-03	3.73E-04	5.221	0.533	0.0668	0.0068	317.5	0.25
C18	3.91E-03	3.94E-04	5.578	0.563	0.0714	0.0072	318.6	0.27
C19	4.15E-03	4.17E-04	5.924	0.596	0.0758	0.0076	320.9	0.34
D02	2.86E-03	2.86E-04	4.080	0.408	0.0522	0.0052	315.3	0.14
D03	2.71E-03	2.71E-04	3.867	0.387	0.0495	0.0050	314.5	0.10
D13	4.50E-03	4.55E-04	6.424	0.650	0.0822	0.0083	321.6	0.35
D14	4.13E-03	4.13E-04	5.893	0.590	0.0754	0.0076	320.0	0.27
E03	2.77E-03	2.77E-04	3.950	0.395	0.0506	0.0051	314.7	0.10
F20	9.19E-05	1.63E-05	0.131	0.023	0.0017	0.0003	297.1	0.20
F21	9.75E-05	2.09E-05	0.139	0.030	0.0018	0.0004	295.9	0.14
F22	2.66E-04	3.22E-05	0.380	0.046	0.0049	0.0006	297.7	0.14
F23	8.60E-05	1.01E-05	0.123	0.014	0.0016	0.0002	296.9	0.10
F24	6.44E-05	8.03E-06	0.092	0.011	0.0012	0.0001	296.7	0.10
F25	5.88E-05	7.19E-06	0.084	0.010	0.0011	0.0001	296.7	0.00

Table C - 5. Run 3028 data, Mach 8 nozzle, $Re_\infty = 4.1\times10^6$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)^(1/2)	ΔSt×(ReD)^(1/2)	St×(ReD)^(1/5)	ΔSt×(ReD)^(1/5)	T_w (K)	ΔT_w (K)
A03	2.66E-03	2.67E-04	3.779	0.378	0.0486	0.0049	316.2	0.10
B02	2.81E-03	2.82E-04	3.991	0.399	0.0513	0.0051	316.8	0.10
B03	2.66E-03	2.66E-04	3.767	0.377	0.0484	0.0048	316.2	0.15
B04	2.51E-03	2.51E-04	3.557	0.356	0.0457	0.0046	315.5	0.00
B13	4.66E-03	4.66E-04	6.612	0.661	0.0850	0.0085	324.9	0.23
B14	4.37E-03	4.37E-04	6.195	0.620	0.0796	0.0080	323.1	0.18
C01	2.90E-03	2.93E-04	4.109	0.415	0.0528	0.0053	318.6	0.18
C02	2.81E-03	2.84E-04	3.986	0.403	0.0512	0.0052	316.7	0.21
C03	2.70E-03	2.73E-04	3.829	0.387	0.0492	0.0050	316.9	0.18
C04	2.60E-03	2.61E-04	3.689	0.369	0.0474	0.0047	315.8	0.10
C05	2.53E-03	2.53E-04	3.581	0.358	0.0460	0.0046	315.5	0.15
C06	2.59E-03	2.59E-04	3.668	0.367	0.0471	0.0047	316.3	0.21
C07	2.71E-03	2.71E-04	3.844	0.385	0.0494	0.0049	317.9	0.10
C08	3.01E-03	3.03E-04	4.275	0.429	0.0549	0.0055	320.9	0.18
C09	4.30E-03	4.31E-04	6.104	0.611	0.0784	0.0078	329.4	0.10
C10	5.31E-03	5.31E-04	7.533	0.753	0.0968	0.0097	334.4	0.29
C11	5.75E-03	5.75E-04	8.150	0.815	0.1048	0.0105	335.1	0.33
C13	5.12E-03	5.13E-04	7.259	0.727	0.0933	0.0093	327.7	0.28
C14	4.62E-03	4.67E-04	6.547	0.663	0.0841	0.0085	323.9	0.33
C15	4.06E-03	4.08E-04	5.757	0.578	0.0740	0.0074	321.8	0.23
C16	3.80E-03	3.81E-04	5.391	0.540	0.0693	0.0069	320.6	0.23
C17	3.83E-03	3.84E-04	5.438	0.545	0.0699	0.0070	320.7	0.21
C18	4.15E-03	4.16E-04	5.890	0.590	0.0757	0.0076	322.2	0.28
C19	4.48E-03	4.50E-04	6.351	0.638	0.0816	0.0082	325.0	0.29
D02	2.90E-03	2.96E-04	4.113	0.420	0.0529	0.0054	317.1	0.18
D03	2.72E-03	2.78E-04	3.858	0.394	0.0496	0.0051	316.1	0.26
D13	4.84E-03	4.86E-04	6.870	0.690	0.0883	0.0089	325.7	0.35
D14	4.35E-03	4.38E-04	6.168	0.622	0.0793	0.0080	323.6	0.31
E03	2.79E-03	2.79E-04	3.957	0.396	0.0509	0.0051	316.5	0.15
F20	1.44E-04	1.67E-05	0.205	0.024	0.0026	0.0003	297.2	0.00
F21	1.56E-04	1.86E-05	0.222	0.026	0.0028	0.0003	296.0	0.21
F22	1.23E-04	1.28E-05	0.174	0.018	0.0022	0.0002	297.6	0.15
F23	1.29E-04	1.35E-05	0.183	0.019	0.0023	0.0002	297.1	0.15
F24	8.12E-05	8.21E-06	0.115	0.012	0.0015	0.0001	296.8	0.10
F25	5.37E-05	5.51E-06	0.076	0.008	0.0010	0.0001	296.7	0.10

Table C - 6. Run 3028 data, Mach 8 nozzle, $Re_\infty = 4.1\times10^6$/ft, α = 20°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	T_w (K)	ΔT_w (K)
A03	2.62E-03	2.69E-04	3.687	0.378	0.0476	0.0049	317.9	0.10
B02	2.93E-03	2.95E-04	4.128	0.414	0.0533	0.0054	318.8	0.15
B03	2.69E-03	2.73E-04	3.793	0.384	0.0490	0.0050	318.0	0.00
B04	2.47E-03	2.49E-04	3.471	0.351	0.0448	0.0045	316.9	0.00
B13	4.79E-03	4.80E-04	6.740	0.676	0.0870	0.0087	328.6	0.29
B14	4.64E-03	4.66E-04	6.539	0.656	0.0844	0.0085	326.9	0.35
C01	3.11E-03	3.13E-04	4.375	0.440	0.0565	0.0057	321.1	0.15
C02	3.01E-03	3.04E-04	4.243	0.428	0.0548	0.0055	319.0	0.10
C03	2.83E-03	2.89E-04	3.986	0.407	0.0515	0.0053	318.9	0.15
C04	2.65E-03	2.70E-04	3.733	0.380	0.0482	0.0049	317.5	0.15
C05	2.46E-03	2.52E-04	3.462	0.355	0.0447	0.0046	316.9	0.10
C06	2.41E-03	2.47E-04	3.391	0.347	0.0438	0.0045	317.5	0.00
C07	2.47E-03	2.53E-04	3.480	0.356	0.0449	0.0046	318.9	0.00
C08	2.71E-03	2.75E-04	3.812	0.387	0.0492	0.0050	321.9	0.00
C09	4.14E-03	4.15E-04	5.829	0.584	0.0752	0.0075	331.8	0.10
C10	5.26E-03	5.27E-04	7.399	0.742	0.0955	0.0096	337.9	0.15
C11	5.83E-03	5.84E-04	8.209	0.823	0.1060	0.0106	339.3	0.29
C13	5.31E-03	5.33E-04	7.478	0.750	0.0965	0.0097	331.8	0.33
C14	5.05E-03	5.14E-04	7.109	0.724	0.0918	0.0093	328.4	0.35
C15	4.61E-03	4.61E-04	6.493	0.650	0.0838	0.0084	325.8	0.26
C16	4.24E-03	4.24E-04	5.967	0.597	0.0770	0.0077	324.2	0.29
C17	4.26E-03	4.27E-04	6.003	0.600	0.0775	0.0078	324.2	0.28
C18	4.54E-03	4.55E-04	6.397	0.640	0.0826	0.0083	326.0	0.21
C19	4.96E-03	4.97E-04	6.985	0.699	0.0902	0.0090	329.6	0.35
D02	3.11E-03	3.16E-04	4.380	0.445	0.0565	0.0057	319.4	0.18
D03	2.83E-03	2.93E-04	3.988	0.412	0.0515	0.0053	318.1	0.10
D13	4.89E-03	4.90E-04	6.883	0.689	0.0889	0.0089	329.5	0.23
D14	4.63E-03	4.65E-04	6.523	0.654	0.0842	0.0084	327.3	0.18
E03	2.84E-03	2.86E-04	3.996	0.402	0.0516	0.0052	318.4	0.00
F20	2.18E-04	2.38E-05	0.307	0.034	0.0040	0.0004	297.5	0.15
F21	2.38E-04	2.59E-05	0.335	0.036	0.0043	0.0005	296.4	0.00
F22	2.04E-04	2.13E-05	0.287	0.030	0.0037	0.0004	297.7	0.10
F23	2.52E-04	3.08E-05	0.355	0.043	0.0046	0.0006	297.4	0.00
F24	7.11E-05	8.70E-06	0.100	0.012	0.0013	0.0002	296.8	0.00
F25	3.70E-05	5.66E-06	0.052	0.008	0.0007	0.0001	296.7	0.10

Table C - 7. Run 3028 data, Mach 8 nozzle, $Re_\infty = 4.1\times10^6$/ft, α = 24°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	T_w (K)	ΔT_w (K)
A03	2.48E-03	2.50E-04	3.500	0.353	0.0451	0.0046	319.3	0.13
B02	2.69E-03	2.70E-04	3.795	0.380	0.0489	0.0049	320.4	0.09
B03	2.41E-03	2.42E-04	3.397	0.341	0.0438	0.0044	319.2	0.13
B04	2.20E-03	2.22E-04	3.101	0.314	0.0400	0.0040	317.9	0.00
B13	4.63E-03	4.63E-04	6.526	0.654	0.0841	0.0084	331.8	0.28
B14	4.58E-03	4.60E-04	6.463	0.649	0.0833	0.0084	330.4	0.27
C01	4.27E-03	5.20E-04	6.026	0.733	0.0777	0.0095	325.1	0.73
C02	4.30E-03	5.59E-04	6.068	0.789	0.0782	0.0102	322.9	0.79
C03	4.17E-03	5.93E-04	5.887	0.837	0.0759	0.0108	322.5	0.86
C04	3.89E-03	5.96E-04	5.483	0.841	0.0707	0.0108	320.6	0.86
C05	3.54E-03	5.73E-04	4.996	0.808	0.0644	0.0104	319.5	0.79
C06	3.33E-03	5.41E-04	4.702	0.763	0.0606	0.0098	319.7	0.73
C07	3.08E-03	4.85E-04	4.350	0.684	0.0561	0.0088	320.6	0.60
C08	1.78E-03	2.12E-04	2.507	0.299	0.0323	0.0039	321.5	0.27
C09	3.82E-03	3.83E-04	5.386	0.540	0.0694	0.0070	333.8	0.21
C10	4.92E-03	4.93E-04	6.945	0.696	0.0895	0.0090	340.9	0.21
C11	5.59E-03	5.59E-04	7.880	0.788	0.1016	0.0102	343.1	0.31
C13	4.90E-03	4.90E-04	6.911	0.691	0.0891	0.0089	334.9	0.23
C14	4.85E-03	4.89E-04	6.845	0.689	0.0882	0.0089	332.1	0.33
C15	4.80E-03	4.81E-04	6.778	0.678	0.0874	0.0087	330.0	0.28
C16	4.50E-03	4.57E-04	6.344	0.644	0.0818	0.0083	327.9	0.41
C17	4.33E-03	4.33E-04	6.111	0.611	0.0788	0.0079	327.7	0.34
C18	4.77E-03	4.78E-04	6.728	0.674	0.0867	0.0087	330.0	0.37
C19	5.28E-03	5.31E-04	7.448	0.749	0.0960	0.0097	334.3	0.45
D02	2.92E-03	2.92E-04	4.118	0.412	0.0531	0.0053	321.2	0.00
D03	2.54E-03	2.55E-04	3.582	0.359	0.0462	0.0046	319.4	0.16
D13	4.74E-03	4.75E-04	6.691	0.670	0.0863	0.0086	332.8	0.25
D14	4.57E-03	4.58E-04	6.452	0.647	0.0832	0.0083	330.9	0.25
E03	2.66E-03	2.67E-04	3.760	0.377	0.0485	0.0049	319.9	0.21
F20	2.03E-04	2.04E-05	0.287	0.029	0.0037	0.0004	297.7	0.09
F21	2.80E-04	2.83E-05	0.395	0.040	0.0051	0.0005	296.7	0.13
F22	2.25E-04	2.26E-05	0.318	0.032	0.0041	0.0004	298.0	0.16
F23	4.58E-04	4.99E-05	0.646	0.070	0.0083	0.0009	298.2	0.09
F24	1.78E-04	1.94E-05	0.252	0.027	0.0032	0.0004	297.1	0.16
F25	1.49E-04	1.54E-05	0.211	0.022	0.0027	0.0003	296.9	0.09

Table C - 8. Run 3027 data, Mach 8 nozzle, $Re_\infty = 8.00\times10^6$/ft, α = 0°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.44E-03	2.44E-04	4.918	0.492	0.0511	0.0051	317.2	0.82
B02	2.49E-03	2.49E-04	5.026	0.503	0.0523	0.0052	317.7	0.85
B03	2.40E-03	2.40E-04	4.845	0.485	0.0504	0.0050	317.0	0.80
B04	2.26E-03	2.27E-04	4.558	0.459	0.0474	0.0048	315.8	0.82
B13	2.62E-03	2.62E-04	5.283	0.530	0.0549	0.0055	318.3	0.94
B14	2.50E-03	2.50E-04	5.041	0.505	0.0524	0.0052	317.5	0.82
C01	2.65E-03	2.65E-04	5.345	0.535	0.0556	0.0056	319.5	0.94
C02	2.50E-03	2.50E-04	5.048	0.505	0.0525	0.0053	317.6	0.82
C03	2.39E-03	2.40E-04	4.832	0.484	0.0502	0.0050	317.6	0.81
C04	2.28E-03	2.29E-04	4.607	0.462	0.0479	0.0048	315.9	0.80
C05	2.22E-03	2.24E-04	4.480	0.451	0.0466	0.0047	315.3	0.81
C06	2.30E-03	2.33E-04	4.650	0.469	0.0484	0.0049	315.8	0.86
C07	2.51E-03	2.53E-04	5.063	0.511	0.0526	0.0053	317.6	0.92
C08	2.91E-03	2.95E-04	5.878	0.595	0.0611	0.0062	320.5	1.07
C09	3.59E-03	3.61E-04	7.247	0.728	0.0754	0.0076	326.2	1.31
C10	3.99E-03	4.00E-04	8.052	0.806	0.0837	0.0084	329.3	1.43
C11	3.68E-03	3.69E-04	7.435	0.744	0.0773	0.0077	326.9	1.33
C12	2.94E-03	2.95E-04	5.938	0.595	0.0617	0.0062	321.7	1.09
C13	2.73E-03	2.74E-04	5.517	0.553	0.0574	0.0057	319.7	0.96
C14	2.51E-03	2.52E-04	5.076	0.508	0.0528	0.0053	317.6	0.89
C15	2.40E-03	2.40E-04	4.840	0.485	0.0503	0.0050	316.9	0.83
C16	2.34E-03	2.34E-04	4.731	0.473	0.0492	0.0049	316.7	0.79
C17	2.40E-03	2.40E-04	4.837	0.484	0.0503	0.0050	317.5	0.72
C18	2.52E-03	2.53E-04	5.097	0.510	0.0530	0.0053	318.7	0.77
C19	2.65E-03	2.65E-04	5.358	0.536	0.0557	0.0056	320.5	0.86
D02	2.55E-03	2.55E-04	5.146	0.515	0.0535	0.0054	318.1	0.85
D03	2.39E-03	2.39E-04	4.818	0.482	0.0501	0.0050	316.9	0.77
D04	2.25E-03	2.26E-04	4.544	0.455	0.0472	0.0047	315.7	0.78
D13	2.68E-03	2.69E-04	5.417	0.542	0.0563	0.0056	319.0	0.93
D14	2.57E-03	2.58E-04	5.197	0.520	0.0540	0.0054	318.2	0.89
F20	2.41E-03	2.42E-04	4.867	0.490	0.0506	0.0051	317.3	0.78
F21	4.31E-05	8.58E-06	0.087	0.017	0.0009	0.0002	298.2	0.18
F22	4.32E-05	6.02E-06	0.087	0.012	0.0009	0.0001	297.1	0.13
F23	9.70E-05	1.14E-05	0.196	0.023	0.0020	0.0002	298.6	0.00
F24	1.43E-04	2.29E-05	0.290	0.046	0.0030	0.0005	299.1	0.16
F25	6.90E-05	1.12E-05	0.139	0.023	0.0014	0.0002	298.5	0.13

Table C - 9. Run 3027 data, Mach 8 nozzle, $Re_\infty = 8.00\times10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.65E-03	2.65E-04	5.285	0.529	0.0553	0.0055	320.5	0.13
B02	2.68E-03	2.68E-04	5.348	0.535	0.0560	0.0056	321.0	0.13
B03	2.55E-03	2.55E-04	5.090	0.509	0.0533	0.0053	320.2	0.16
B04	2.36E-03	2.36E-04	4.719	0.472	0.0494	0.0049	318.8	0.09
B13	2.81E-03	2.81E-04	5.609	0.561	0.0587	0.0059	321.9	0.23
B14	2.70E-03	2.70E-04	5.392	0.539	0.0564	0.0056	321.0	0.19
C01	2.73E-03	2.73E-04	5.455	0.545	0.0571	0.0057	323.0	0.23
C02	2.63E-03	2.63E-04	5.257	0.526	0.0550	0.0055	320.9	0.00
C03	2.50E-03	2.50E-04	4.997	0.500	0.0523	0.0052	320.7	0.09
C04	2.34E-03	2.34E-04	4.663	0.466	0.0488	0.0049	318.8	0.00
C05	2.23E-03	2.23E-04	4.449	0.445	0.0466	0.0047	318.0	0.09
C06	2.27E-03	2.27E-04	4.533	0.454	0.0474	0.0047	318.6	0.09
C07	2.46E-03	2.46E-04	4.904	0.491	0.0513	0.0051	320.5	0.00
C08	2.82E-03	2.82E-04	5.624	0.563	0.0589	0.0059	323.9	0.16
C09	3.53E-03	3.53E-04	7.043	0.705	0.0737	0.0074	330.6	0.19
C10	4.04E-03	4.04E-04	8.074	0.808	0.0845	0.0085	334.4	0.13
C11	4.13E-03	4.13E-04	8.244	0.824	0.0863	0.0086	332.5	0.23
C12	3.33E-03	3.35E-04	6.658	0.668	0.0697	0.0070	326.3	0.21
C13	3.05E-03	3.05E-04	6.090	0.610	0.0637	0.0064	323.8	0.19
C14	2.77E-03	2.77E-04	5.526	0.553	0.0578	0.0058	321.3	0.09
C15	2.57E-03	2.57E-04	5.130	0.513	0.0537	0.0054	320.2	0.16
C16	2.48E-03	2.48E-04	4.956	0.496	0.0519	0.0052	319.8	0.19
C17	2.52E-03	2.52E-04	5.030	0.503	0.0526	0.0053	320.5	0.16
C18	2.65E-03	2.65E-04	5.283	0.528	0.0553	0.0055	321.9	0.00
C19	2.78E-03	2.78E-04	5.545	0.555	0.0580	0.0058	323.9	0.13
D02	2.71E-03	2.71E-04	5.412	0.542	0.0566	0.0057	321.5	0.09
D03	2.54E-03	2.54E-04	5.078	0.508	0.0531	0.0053	320.1	0.19
D04	2.32E-03	2.32E-04	4.630	0.463	0.0485	0.0048	318.6	0.09
D13	3.00E-03	3.00E-04	5.981	0.598	0.0626	0.0063	323.0	0.13
D14	2.78E-03	2.78E-04	5.548	0.555	0.0581	0.0058	321.8	0.13
F20	2.51E-03	2.51E-04	5.014	0.502	0.0525	0.0053	320.3	0.13
F21	2.32E-04	2.48E-05	0.463	0.049	0.0048	0.0005	298.8	0.13
F22	1.78E-04	2.01E-05	0.356	0.040	0.0037	0.0004	297.5	0.00
F23	3.04E-04	3.12E-05	0.607	0.062	0.0064	0.0007	299.3	0.09
F24	8.10E-05	9.04E-06	0.162	0.018	0.0017	0.0002	299.0	0.09
F25	9.86E-05	1.18E-05	0.197	0.023	0.0021	0.0002	298.6	0.13

Table C - 10. Run 3027 data, Mach 8 nozzle, $Re_\infty = 8.00\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	$St\times(ReD)^{(1/2)}$	$\Delta St\times(ReD)^{(1/2)}$	$St\times(ReD)^{(1/5)}$	$\Delta St\times(ReD)^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.62E-03	2.62E-04	5.243	0.524	0.0549	0.0055	322.1	0.00
B02	2.67E-03	2.67E-04	5.333	0.534	0.0558	0.0056	322.6	0.21
B03	2.47E-03	2.48E-04	4.944	0.495	0.0517	0.0052	321.5	0.13
B04	2.26E-03	2.26E-04	4.514	0.452	0.0472	0.0047	319.8	0.09
B13	2.92E-03	2.93E-04	5.840	0.585	0.0611	0.0061	323.8	0.13
B14	2.73E-03	2.73E-04	5.459	0.546	0.0571	0.0057	322.7	0.16
C01	2.84E-03	2.87E-04	5.673	0.573	0.0593	0.0060	324.7	0.13
C02	2.74E-03	2.77E-04	5.477	0.554	0.0573	0.0058	322.6	0.13
C03	2.53E-03	2.54E-04	5.054	0.508	0.0529	0.0053	322.1	0.16
C04	2.27E-03	2.27E-04	4.534	0.453	0.0474	0.0047	319.9	0.00
C05	2.11E-03	2.11E-04	4.223	0.422	0.0442	0.0044	319.0	0.16
C06	2.11E-03	2.11E-04	4.210	0.422	0.0440	0.0044	319.4	0.00
C07	2.24E-03	2.26E-04	4.482	0.451	0.0469	0.0047	321.4	0.00
C08	2.54E-03	2.55E-04	5.074	0.510	0.0531	0.0053	324.8	0.09
C09	3.28E-03	3.28E-04	6.555	0.656	0.0686	0.0069	331.9	0.13
C10	3.80E-03	3.81E-04	7.601	0.761	0.0795	0.0080	336.1	0.09
C11	4.03E-03	4.03E-04	8.053	0.805	0.0842	0.0084	334.9	0.19
C12	3.58E-03	3.59E-04	7.157	0.718	0.0749	0.0075	329.0	0.21
C13	3.17E-03	3.17E-04	6.336	0.634	0.0663	0.0066	325.9	0.13
C14	2.85E-03	2.85E-04	5.697	0.570	0.0596	0.0060	323.1	0.21
C15	2.65E-03	2.65E-04	5.298	0.530	0.0554	0.0055	321.8	0.16
C16	2.55E-03	2.55E-04	5.101	0.510	0.0534	0.0053	321.3	0.09
C17	2.57E-03	2.58E-04	5.146	0.515	0.0538	0.0054	322.0	0.13
C18	2.72E-03	2.72E-04	5.437	0.544	0.0569	0.0057	323.4	0.13
C19	2.88E-03	2.88E-04	5.749	0.575	0.0601	0.0060	325.7	0.19
D02	3.04E-03	3.09E-04	6.083	0.618	0.0636	0.0065	323.6	0.25
D03	2.63E-03	2.64E-04	5.255	0.528	0.0550	0.0055	321.7	0.16
D04	2.28E-03	2.28E-04	4.547	0.455	0.0476	0.0048	319.8	0.09
D13	3.07E-03	3.07E-04	6.126	0.613	0.0641	0.0064	324.9	0.13
D14	2.88E-03	2.88E-04	5.746	0.575	0.0601	0.0060	323.6	0.19
F20	2.56E-03	2.57E-04	5.116	0.514	0.0535	0.0054	321.8	0.16
F21	2.43E-04	2.48E-05	0.486	0.049	0.0051	0.0005	299.1	0.09
F22	2.13E-04	2.13E-05	0.425	0.043	0.0044	0.0004	297.8	0.00
F23	2.37E-04	2.52E-05	0.474	0.050	0.0050	0.0005	299.5	0.09
F24	1.05E-04	1.05E-05	0.210	0.021	0.0022	0.0002	299.1	0.13
F25	1.31E-04	1.32E-05	0.262	0.026	0.0027	0.0003	298.8	0.00

Table C - 11. Run 3027 data, Mach 8 nozzle, $Re_\infty = 8.00\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.92E-03	2.95E-04	5.826	0.590	0.0610	0.0062	323.9	0.18
B02	3.13E-03	3.18E-04	6.249	0.635	0.0654	0.0066	324.7	0.31
B03	2.85E-03	2.88E-04	5.683	0.575	0.0595	0.0060	323.3	0.18
B04	2.51E-03	2.53E-04	5.015	0.505	0.0525	0.0053	321.3	0.14
B13	3.09E-03	3.09E-04	6.169	0.617	0.0646	0.0065	325.7	0.10
B14	2.88E-03	2.88E-04	5.750	0.576	0.0602	0.0060	324.3	0.14
C01	3.38E-03	3.41E-04	6.753	0.681	0.0707	0.0071	327.3	0.29
C02	3.33E-03	3.37E-04	6.648	0.672	0.0696	0.0070	325.1	0.27
C03	2.97E-03	3.01E-04	5.938	0.601	0.0621	0.0063	324.2	0.20
C04	2.53E-03	2.56E-04	5.047	0.510	0.0528	0.0053	321.4	0.18
C05	2.21E-03	2.22E-04	4.405	0.443	0.0461	0.0046	320.0	0.18
C06	2.09E-03	2.09E-04	4.169	0.418	0.0436	0.0044	320.2	0.00
C07	2.08E-03	2.08E-04	4.157	0.416	0.0435	0.0044	321.8	0.00
C08	2.34E-03	2.34E-04	4.675	0.468	0.0489	0.0049	325.2	0.00
C09	3.17E-03	3.17E-04	6.338	0.634	0.0663	0.0066	333.0	0.10
C10	3.78E-03	3.78E-04	7.555	0.756	0.0791	0.0079	337.6	0.18
C11	4.11E-03	4.11E-04	8.203	0.820	0.0858	0.0086	337.0	0.18
C12	3.99E-03	4.00E-04	7.960	0.798	0.0833	0.0084	331.9	0.29
C13	3.47E-03	3.49E-04	6.935	0.697	0.0726	0.0073	328.2	0.27
C14	3.02E-03	3.02E-04	6.030	0.604	0.0631	0.0063	324.9	0.18
C15	2.75E-03	2.75E-04	5.492	0.550	0.0575	0.0058	323.4	0.10
C16	2.66E-03	2.66E-04	5.314	0.532	0.0556	0.0056	322.9	0.14
C17	2.66E-03	2.67E-04	5.319	0.532	0.0557	0.0056	323.5	0.00
C18	2.86E-03	2.87E-04	5.714	0.573	0.0598	0.0060	325.0	0.18
C19	3.07E-03	3.08E-04	6.139	0.616	0.0642	0.0064	327.6	0.18
D02	3.51E-03	3.52E-04	7.001	0.702	0.0733	0.0074	326.4	0.25
D03	2.94E-03	2.95E-04	5.867	0.589	0.0614	0.0062	323.7	0.25
D04	2.47E-03	2.49E-04	4.930	0.496	0.0516	0.0052	321.2	0.14
D13	3.31E-03	3.32E-04	6.615	0.663	0.0692	0.0069	327.0	0.25
D14	3.02E-03	3.03E-04	6.041	0.605	0.0632	0.0063	325.4	0.23
F20	3.44E-03	3.66E-04	6.872	0.732	0.0719	0.0077	324.6	0.40
F21	1.72E-04	1.86E-05	0.343	0.037	0.0036	0.0004	299.2	0.00
F22	1.90E-04	1.91E-05	0.379	0.038	0.0040	0.0004	298.0	0.00
F23	2.69E-04	2.82E-05	0.538	0.056	0.0056	0.0006	299.7	0.10
F24	9.71E-05	9.71E-06	0.194	0.019	0.0020	0.0002	299.1	0.10
F25	9.25E-05	9.85E-06	0.185	0.020	0.0019	0.0002	298.8	0.10

Table C - 12. Run 3027 data, Mach 8 nozzle, $Re_\infty = 8.00\times10^6$/ft, α = 16°.

Gauge	St	ΔSt	$St\times(ReD)^{(1/2)}$	$\Delta St\times(ReD)^{(1/2)}$	$St\times(ReD)^{(1/5)}$	$\Delta St\times(ReD)^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.40E-03	3.43E-04	6.790	0.686	0.0710	0.0072	326.6	0.27
B02	3.53E-03	3.54E-04	7.066	0.707	0.0739	0.0074	327.5	0.27
B03	3.19E-03	3.19E-04	6.374	0.638	0.0667	0.0067	325.7	0.21
B04	2.76E-03	2.76E-04	5.514	0.552	0.0577	0.0058	323.3	0.21
B13	3.21E-03	3.22E-04	6.423	0.643	0.0672	0.0067	327.7	0.16
B14	3.06E-03	3.07E-04	6.128	0.614	0.0641	0.0064	326.3	0.16
C01	3.79E-03	3.80E-04	7.571	0.760	0.0792	0.0080	330.4	0.34
C02	3.75E-03	3.77E-04	7.494	0.754	0.0784	0.0079	328.2	0.31
C03	3.39E-03	3.40E-04	6.783	0.680	0.0709	0.0071	326.9	0.30
C04	2.87E-03	2.87E-04	5.742	0.574	0.0601	0.0060	323.6	0.23
C05	2.40E-03	2.41E-04	4.807	0.481	0.0503	0.0050	321.6	0.13
C06	2.13E-03	2.15E-04	4.257	0.430	0.0445	0.0045	321.2	0.16
C07	2.04E-03	2.09E-04	4.087	0.418	0.0427	0.0044	322.5	0.00
C08	2.15E-03	2.19E-04	4.297	0.437	0.0449	0.0046	325.6	0.13
C09	3.01E-03	3.01E-04	6.015	0.603	0.0629	0.0063	333.9	0.09
C10	3.67E-03	3.68E-04	7.347	0.735	0.0768	0.0077	339.0	0.09
C11	4.04E-03	4.04E-04	8.082	0.808	0.0845	0.0085	339.0	0.16
C12	3.90E-03	3.91E-04	7.799	0.782	0.0816	0.0082	334.4	0.25
C13	3.73E-03	3.74E-04	7.468	0.747	0.0781	0.0078	330.8	0.21
C14	3.27E-03	3.28E-04	6.532	0.656	0.0683	0.0069	327.1	0.23
C15	2.92E-03	2.92E-04	5.830	0.584	0.0610	0.0061	325.2	0.21
C16	2.75E-03	2.75E-04	5.505	0.551	0.0576	0.0058	324.5	0.13
C17	2.78E-03	2.78E-04	5.550	0.555	0.0580	0.0058	325.0	0.16
C18	3.03E-03	3.04E-04	6.067	0.607	0.0634	0.0063	326.9	0.19
C19	3.32E-03	3.33E-04	6.642	0.665	0.0695	0.0070	329.8	0.23
D02	3.82E-03	3.84E-04	7.632	0.769	0.0798	0.0080	329.2	0.28
D03	3.40E-03	3.48E-04	6.799	0.696	0.0711	0.0073	326.3	0.31
D04	2.99E-03	3.08E-04	5.983	0.617	0.0626	0.0065	323.5	0.30
D13	3.46E-03	3.46E-04	6.911	0.691	0.0723	0.0072	329.2	0.25
D14	3.15E-03	3.15E-04	6.291	0.629	0.0658	0.0066	327.3	0.19
F20	4.66E-03	4.72E-04	9.328	0.943	0.0975	0.0099	329.8	0.49
F21	1.53E-04	1.65E-05	0.306	0.033	0.0032	0.0003	299.2	0.00
F22	1.77E-04	1.79E-05	0.355	0.036	0.0037	0.0004	298.1	0.09
F23	2.28E-04	2.84E-05	0.456	0.057	0.0048	0.0006	299.9	0.09
F24	1.21E-04	1.35E-05	0.241	0.027	0.0025	0.0003	299.2	0.00
F25	8.62E-05	8.66E-06	0.172	0.017	0.0018	0.0002	298.8	0.09

Table C - 13. Run 3027 data, Mach 8 nozzle, $Re_\infty = 8.00 \times 10^6$/ft, α = 20°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.13E-03	4.21E-04	8.259	0.842	0.0864	0.0088	330.3	0.40
B02	3.64E-03	3.64E-04	7.280	0.728	0.0761	0.0076	330.1	0.18
B03	3.26E-03	3.26E-04	6.521	0.652	0.0682	0.0068	328.0	0.00
B04	2.79E-03	2.79E-04	5.578	0.558	0.0583	0.0058	325.1	0.10
B13	3.28E-03	3.28E-04	6.562	0.656	0.0686	0.0069	329.7	0.10
B14	3.16E-03	3.16E-04	6.328	0.633	0.0662	0.0066	328.3	0.14
C01	4.20E-03	4.21E-04	8.399	0.842	0.0878	0.0088	333.9	0.34
C02	4.24E-03	4.27E-04	8.476	0.853	0.0886	0.0089	331.8	0.35
C03	3.71E-03	3.75E-04	7.425	0.750	0.0776	0.0078	329.9	0.29
C04	2.98E-03	3.04E-04	5.960	0.607	0.0623	0.0064	325.6	0.25
C05	2.40E-03	2.51E-04	4.804	0.501	0.0502	0.0052	322.8	0.25
C06	1.95E-03	2.09E-04	3.892	0.417	0.0407	0.0044	321.6	0.18
C07	1.65E-03	1.80E-04	3.292	0.359	0.0344	0.0038	322.2	0.00
C08	1.74E-03	1.74E-04	3.475	0.348	0.0363	0.0036	325.2	0.10
C09	2.85E-03	2.85E-04	5.693	0.570	0.0595	0.0060	334.7	0.00
C10	3.55E-03	3.56E-04	7.108	0.711	0.0743	0.0074	340.3	0.14
C11	3.97E-03	3.97E-04	7.929	0.793	0.0829	0.0083	340.8	0.20
C12	3.68E-03	3.68E-04	7.361	0.736	0.0770	0.0077	336.1	0.00
C13	3.67E-03	3.67E-04	7.337	0.734	0.0767	0.0077	333.0	0.23
C14	3.55E-03	3.55E-04	7.097	0.710	0.0742	0.0074	329.7	0.20
C15	3.15E-03	3.15E-04	6.294	0.631	0.0658	0.0066	327.4	0.20
C16	2.86E-03	2.86E-04	5.710	0.571	0.0597	0.0060	326.2	0.10
C17	2.86E-03	2.86E-04	5.710	0.572	0.0597	0.0060	326.7	0.14
C18	3.16E-03	3.16E-04	6.322	0.633	0.0661	0.0066	328.8	0.20
C19	3.54E-03	3.54E-04	7.076	0.709	0.0740	0.0074	332.3	0.23
D02	4.43E-03	4.46E-04	8.854	0.891	0.0926	0.0093	333.0	0.32
D03	4.20E-03	4.25E-04	8.408	0.848	0.0879	0.0089	330.3	0.40
D04	3.93E-03	4.01E-04	7.858	0.801	0.0822	0.0084	327.6	0.41
D13	3.45E-03	3.45E-04	6.892	0.689	0.0721	0.0072	331.2	0.18
D14	3.18E-03	3.18E-04	6.363	0.636	0.0665	0.0067	329.2	0.23
F20	4.84E-03	4.84E-04	9.683	0.968	0.1013	0.0101	334.2	0.27
F21	2.10E-04	2.11E-05	0.420	0.042	0.0044	0.0004	299.4	0.00
F22	2.22E-04	2.22E-05	0.444	0.044	0.0046	0.0005	298.3	0.14
F23	1.31E-04	1.34E-05	0.261	0.027	0.0027	0.0003	299.7	0.10
F24	2.49E-04	2.89E-05	0.499	0.058	0.0052	0.0006	299.6	0.10
F25	7.00E-05	7.30E-06	0.140	0.015	0.0015	0.0002	298.8	0.10

Table C - 14. Run 3027 data, Mach 8 nozzle, $Re_\infty = 8.00\times10^6$/ft, α = 24°.

Gauge	St	ΔSt	$St\times(ReD)^{(1/2)}$	$\Delta St\times(ReD)^{(1/2)}$	$St\times(ReD)^{(1/5)}$	$\Delta St\times(ReD)^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.77E-03	4.77E-04	9.521	0.952	0.0997	0.0100	335.2	0.37
B02	3.59E-03	3.60E-04	7.155	0.718	0.0749	0.0075	332.4	0.09
B03	2.99E-03	3.01E-04	5.961	0.601	0.0624	0.0063	329.5	0.09
B04	2.44E-03	2.47E-04	4.868	0.492	0.0510	0.0052	326.0	0.09
B13	3.16E-03	3.16E-04	6.302	0.631	0.0660	0.0066	331.3	0.19
B14	3.11E-03	3.11E-04	6.202	0.621	0.0650	0.0065	330.1	0.09
C01	4.45E-03	4.45E-04	8.873	0.887	0.0929	0.0093	337.6	0.31
C02	4.69E-03	4.69E-04	9.356	0.936	0.0980	0.0098	336.0	0.35
C03	4.70E-03	4.77E-04	9.383	0.952	0.0983	0.0100	334.6	0.49
C04	4.57E-03	4.78E-04	9.117	0.954	0.0955	0.0100	330.9	0.63
C05	4.45E-03	4.86E-04	8.877	0.969	0.0930	0.0102	328.4	0.74
C06	4.39E-03	5.03E-04	8.765	1.003	0.0918	0.0105	327.5	0.82
C07	4.65E-03	5.66E-04	9.281	1.128	0.0972	0.0118	328.6	1.00
C08	2.09E-03	2.10E-04	4.176	0.418	0.0437	0.0044	326.2	0.16
C09	2.67E-03	2.68E-04	5.323	0.534	0.0557	0.0056	335.4	0.13
C10	3.38E-03	3.38E-04	6.739	0.675	0.0706	0.0071	341.5	0.16
C11	3.88E-03	3.89E-04	7.747	0.775	0.0811	0.0081	342.7	0.00
C12	3.63E-03	3.64E-04	7.250	0.725	0.0759	0.0076	338.0	0.16
C13	3.50E-03	3.50E-04	6.980	0.699	0.0731	0.0073	334.7	0.19
C14	3.42E-03	3.43E-04	6.827	0.685	0.0715	0.0072	331.9	0.09
C15	3.30E-03	3.31E-04	6.592	0.659	0.0690	0.0069	329.8	0.25
C16	3.00E-03	3.01E-04	5.984	0.601	0.0627	0.0063	328.1	0.23
C17	3.05E-03	3.05E-04	6.079	0.608	0.0637	0.0064	328.8	0.21
C18	3.35E-03	3.35E-04	6.677	0.668	0.0699	0.0070	331.1	0.16
C19	3.82E-03	3.82E-04	7.618	0.763	0.0798	0.0080	335.2	0.28
D02	4.71E-03	4.71E-04	9.387	0.939	0.0983	0.0098	337.0	0.34
D03	4.63E-03	4.63E-04	9.235	0.924	0.0967	0.0097	334.7	0.34
D04	4.58E-03	4.58E-04	9.134	0.914	0.0957	0.0096	332.5	0.42
D13	3.33E-03	3.34E-04	6.653	0.666	0.0697	0.0070	333.0	0.13
D14	3.12E-03	3.12E-04	6.220	0.623	0.0651	0.0065	330.9	0.09
F20	4.71E-03	4.71E-04	9.394	0.941	0.0984	0.0098	337.6	0.23
F21	1.52E-04	1.53E-05	0.303	0.030	0.0032	0.0003	299.5	0.09
F22	2.07E-04	2.08E-05	0.412	0.041	0.0043	0.0004	298.4	0.13
F23	1.96E-04	2.02E-05	0.392	0.040	0.0041	0.0004	299.9	0.13
F24	3.65E-04	3.66E-05	0.729	0.073	0.0076	0.0008	300.2	0.00
F25	1.11E-04	1.45E-05	0.221	0.029	0.0023	0.0003	298.9	0.00

Table C - 15. Run 3042 data, Mach 8 nozzle, $Re_{\infty} = 8.6\times10^6$/ft, $\alpha = 0°$.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.03E-03	3.03E-04	6.254	0.626	0.0642	0.0064	327.2	1.68
B02	3.22E-03	3.27E-04	6.652	0.679	0.0682	0.0069	329.2	1.75
B03	2.89E-03	2.92E-04	5.967	0.604	0.0612	0.0062	325.7	1.64
B04	2.64E-03	2.65E-04	5.453	0.548	0.0559	0.0056	324.0	1.44
B13	2.59E-03	2.59E-04	5.339	0.535	0.0548	0.0055	323.6	1.43
B14	2.49E-03	2.50E-04	5.132	0.516	0.0527	0.0053	322.6	1.37
C01	3.18E-03	3.21E-04	6.568	0.665	0.0674	0.0068	330.5	1.78
C02	3.16E-03	3.19E-04	6.522	0.661	0.0669	0.0068	328.8	1.72
C03	2.86E-03	2.88E-04	5.907	0.597	0.0606	0.0061	325.6	1.56
C04	2.64E-03	2.65E-04	5.445	0.548	0.0559	0.0056	324.1	1.45
C05	2.50E-03	2.50E-04	5.154	0.516	0.0529	0.0053	322.7	1.39
C06	2.53E-03	2.54E-04	5.233	0.524	0.0537	0.0054	323.0	1.43
C07	2.72E-03	2.72E-04	5.621	0.562	0.0577	0.0058	324.9	1.53
C08	3.13E-03	3.13E-04	6.453	0.646	0.0662	0.0066	328.8	1.71
C09	3.88E-03	3.90E-04	8.009	0.809	0.0822	0.0083	337.1	2.10
C10	4.17E-03	4.17E-04	8.611	0.861	0.0883	0.0088	339.7	2.30
C11	3.70E-03	3.70E-04	7.639	0.764	0.0784	0.0078	335.1	2.10
C12	2.92E-03	2.93E-04	6.037	0.605	0.0619	0.0062	328.3	1.66
C13	2.67E-03	2.68E-04	5.517	0.553	0.0566	0.0057	324.9	1.47
C14	2.50E-03	2.50E-04	5.151	0.516	0.0528	0.0053	322.8	1.39
C15	2.49E-03	2.49E-04	5.134	0.514	0.0527	0.0053	322.6	1.39
C16	2.59E-03	2.60E-04	5.355	0.537	0.0549	0.0055	323.4	1.49
C17	2.83E-03	2.84E-04	5.837	0.587	0.0599	0.0060	325.5	1.61
C18	3.13E-03	3.13E-04	6.455	0.647	0.0662	0.0066	328.2	1.74
C19	3.20E-03	3.21E-04	6.612	0.664	0.0678	0.0068	330.4	1.82
D02	3.16E-03	3.17E-04	6.527	0.653	0.0670	0.0067	328.6	1.72
D03	2.90E-03	2.91E-04	5.987	0.601	0.0614	0.0062	326.4	1.59
D04	2.65E-03	2.65E-04	5.465	0.548	0.0561	0.0056	324.0	1.46
D13	2.61E-03	2.62E-04	5.395	0.540	0.0554	0.0055	323.9	1.44
D14	2.51E-03	2.52E-04	5.187	0.520	0.0532	0.0053	322.8	1.43
E03	2.99E-03	3.00E-04	6.169	0.620	0.0633	0.0064	327.2	1.64
F20	7.92E-05	9.59E-06	0.163	0.020	0.0017	0.0002	298.5	0.21
F21	7.62E-05	9.79E-06	0.157	0.020	0.0016	0.0002	298.5	0.27
F22	1.43E-04	1.57E-05	0.294	0.032	0.0030	0.0003	299.2	0.21
F23	1.36E-04	1.48E-05	0.280	0.031	0.0029	0.0003	299.1	0.21
F24	7.16E-05	8.95E-06	0.148	0.018	0.0015	0.0002	298.5	0.00
F25	7.05E-05	8.82E-06	0.146	0.018	0.0015	0.0002	298.4	0.15

Table C - 16. Run 3043 data, Mach 8 nozzle, $Re_\infty = 15.7\times10^6$/ft, α = 0°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.88E-03	3.90E-04	11.154	1.139	0.0938	0.0095	341.0	6.84
B02	4.05E-03	4.06E-04	11.634	1.190	0.0979	0.0099	343.1	6.98
B03	4.06E-03	4.47E-04	11.668	1.351	0.0981	0.0110	343.2	6.59
B04	3.55E-03	3.63E-04	10.206	1.079	0.0859	0.0089	337.5	6.19
B13	2.63E-03	2.64E-04	7.558	0.776	0.0636	0.0064	327.6	4.87
B14	2.86E-03	2.87E-04	8.216	0.838	0.0691	0.0070	329.5	5.32
C01	3.93E-03	3.94E-04	11.293	1.154	0.0950	0.0096	342.9	7.07
C02	4.05E-03	4.07E-04	11.641	1.195	0.0979	0.0099	343.0	7.00
C03	3.78E-03	3.83E-04	10.868	1.134	0.0914	0.0094	339.6	6.59
C04	3.59E-03	3.73E-04	10.313	1.116	0.0868	0.0091	338.1	6.16
C05	3.16E-03	3.34E-04	9.081	1.003	0.0764	0.0082	333.0	5.56
C06	2.88E-03	3.02E-04	8.271	0.905	0.0696	0.0074	329.9	5.16
C07	2.60E-03	2.65E-04	7.460	0.779	0.0628	0.0064	327.0	4.87
C08	2.50E-03	2.52E-04	7.169	0.737	0.0603	0.0061	326.0	4.80
C09	2.91E-03	3.03E-04	8.352	0.901	0.0703	0.0074	332.1	5.37
C10	3.22E-03	3.37E-04	9.257	1.005	0.0779	0.0083	335.1	5.97
C11	2.74E-03	2.76E-04	7.878	0.789	0.0663	0.0066	329.5	5.49
C12	2.43E-03	2.43E-04	6.974	0.714	0.0587	0.0059	326.5	4.64
C13	2.55E-03	2.57E-04	7.324	0.758	0.0616	0.0063	327.3	4.64
C14	2.77E-03	2.81E-04	7.964	0.833	0.0670	0.0069	329.1	5.01
C15	3.12E-03	3.13E-04	8.958	0.921	0.0754	0.0076	332.7	5.66
C16	3.49E-03	3.52E-04	10.041	1.038	0.0845	0.0086	336.8	6.19
C17	3.74E-03	3.75E-04	10.739	1.096	0.0903	0.0091	339.4	6.62
C18	4.02E-03	4.02E-04	11.550	1.175	0.0972	0.0098	342.5	7.04
C19	4.02E-03	4.03E-04	11.544	1.180	0.0971	0.0098	343.9	7.19
D02	3.97E-03	3.98E-04	11.399	1.160	0.0959	0.0096	341.7	7.03
D03	3.79E-03	3.84E-04	10.889	1.132	0.0916	0.0093	339.9	6.64
D04	3.59E-03	3.69E-04	10.310	1.097	0.0867	0.0090	337.6	6.29
D13	2.68E-03	2.74E-04	7.714	0.815	0.0649	0.0067	328.2	4.84
D14	2.97E-03	3.06E-04	8.537	0.917	0.0718	0.0075	331.4	5.24
E03	3.95E-03	3.98E-04	11.345	1.171	0.0954	0.0097	341.6	6.91
F20	9.71E-05	1.02E-05	0.279	0.030	0.0023	0.0002	297.0	0.20
F21	8.78E-05	9.20E-06	0.252	0.026	0.0021	0.0002	296.9	0.20
F22	1.40E-04	1.42E-05	0.401	0.041	0.0034	0.0003	297.6	0.32
F23	1.39E-04	1.41E-05	0.399	0.040	0.0034	0.0003	297.6	0.28
F24	8.66E-05	9.37E-06	0.249	0.026	0.0021	0.0002	296.9	0.17
F25	9.21E-05	9.64E-06	0.265	0.028	0.0022	0.0002	297.0	0.17

Table C - 17. Run 3035 data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 0°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.32E-03	3.35E-04	9.287	0.940	0.0793	0.0080	390.0	0.50
B02	3.55E-03	3.58E-04	9.945	1.004	0.0850	0.0086	393.0	0.62
B03	3.20E-03	3.26E-04	8.974	0.915	0.0767	0.0078	388.4	0.43
B04	2.79E-03	2.84E-04	7.816	0.796	0.0668	0.0068	383.2	0.15
B13	1.89E-03	1.92E-04	5.305	0.537	0.0453	0.0046	353.5	0.63
B14	2.13E-03	2.25E-04	5.957	0.629	0.0509	0.0054	355.6	0.94
C01	3.61E-03	3.62E-04	10.112	1.013	0.0864	0.0087	394.5	0.91
C02	3.93E-03	3.93E-04	11.008	1.102	0.0941	0.0094	396.9	0.99
C03	3.16E-03	3.22E-04	8.857	0.903	0.0757	0.0077	390.1	0.38
C04	2.77E-03	2.83E-04	7.754	0.794	0.0663	0.0068	383.1	0.23
C05	2.38E-03	2.42E-04	6.655	0.678	0.0569	0.0058	376.2	0.15
C06	2.16E-03	2.16E-04	6.045	0.605	0.0516	0.0052	369.1	0.29
C07	2.10E-03	2.16E-04	5.876	0.604	0.0502	0.0052	363.0	0.70
C08	2.16E-03	2.24E-04	6.036	0.626	0.0516	0.0053	356.3	1.00
C09	2.53E-03	2.61E-04	7.090	0.729	0.0606	0.0062	360.6	1.29
C10	2.50E-03	2.91E-04	6.997	0.813	0.0598	0.0070	362.8	1.29
C11	2.18E-03	2.19E-04	6.108	0.613	0.0522	0.0052	363.6	0.36
C12	1.78E-03	1.78E-04	4.973	0.498	0.0425	0.0043	358.3	0.23
C13	1.86E-03	1.88E-04	5.216	0.526	0.0446	0.0045	358.3	0.49
C14	2.03E-03	2.15E-04	5.680	0.602	0.0485	0.0051	355.0	0.87
C15	2.34E-03	2.55E-04	6.561	0.713	0.0561	0.0061	355.9	1.24
C16	2.81E-03	3.08E-04	7.864	0.862	0.0672	0.0074	360.0	1.72
C17	3.25E-03	3.37E-04	9.107	0.943	0.0778	0.0081	368.2	1.73
C18	3.67E-03	3.71E-04	10.286	1.040	0.0879	0.0089	378.7	1.66
C19	3.61E-03	3.62E-04	10.122	1.014	0.0865	0.0087	385.4	1.42
D02	3.63E-03	3.66E-04	10.177	1.024	0.0869	0.0087	393.0	0.73
D03	3.26E-03	3.30E-04	9.123	0.925	0.0779	0.0079	388.9	0.51
D04	2.89E-03	2.96E-04	8.098	0.830	0.0692	0.0071	385.4	0.28
D13	1.87E-03	1.91E-04	5.251	0.535	0.0449	0.0046	352.7	0.63
D14	2.10E-03	2.27E-04	5.891	0.635	0.0503	0.0054	354.1	1.01
E03	4.08E-03	4.12E-04	11.438	1.155	0.0977	0.0099	398.2	0.77
F20	7.61E-05	1.45E-05	0.213	0.041	0.0018	0.0003	300.0	0.10
F21	7.49E-05	9.77E-06	0.210	0.027	0.0018	0.0002	294.8	0.07
F22	1.16E-04	2.42E-05	0.325	0.068	0.0028	0.0006	300.0	0.15
F23	1.45E-04	2.29E-05	0.406	0.064	0.0035	0.0005	298.8	0.10
F24	8.73E-05	1.21E-05	0.244	0.034	0.0021	0.0003	297.3	0.00
F25	9.61E-05	1.72E-05	0.269	0.048	0.0023	0.0004	297.3	0.15

Table C - 18. Run 3035 data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.59E-03	3.59E-04	10.049	1.006	0.0858	0.0086	386.1	0.31
B02	3.76E-03	3.76E-04	10.542	1.055	0.0900	0.0090	388.2	0.41
B03	3.48E-03	3.49E-04	9.759	0.977	0.0833	0.0083	384.8	0.31
B04	3.16E-03	3.17E-04	8.856	0.889	0.0756	0.0076	381.3	0.12
B13	1.90E-03	1.90E-04	5.318	0.533	0.0454	0.0045	351.0	0.12
B14	1.95E-03	1.95E-04	5.464	0.547	0.0467	0.0047	351.9	0.17
C01	3.67E-03	3.67E-04	10.281	1.028	0.0878	0.0088	388.2	0.44
C02	3.97E-03	3.97E-04	11.113	1.112	0.0949	0.0095	390.7	0.42
C03	3.48E-03	3.49E-04	9.765	0.978	0.0834	0.0084	386.8	0.31
C04	3.14E-03	3.15E-04	8.789	0.883	0.0751	0.0075	381.3	0.12
C05	2.65E-03	2.66E-04	7.416	0.747	0.0633	0.0064	375.2	0.00
C06	2.22E-03	2.23E-04	6.235	0.626	0.0532	0.0053	367.6	0.00
C07	1.94E-03	1.94E-04	5.439	0.544	0.0464	0.0046	360.0	0.00
C08	1.84E-03	1.85E-04	5.168	0.518	0.0441	0.0044	351.3	0.26
C09	2.18E-03	2.18E-04	6.119	0.612	0.0523	0.0052	354.1	0.35
C10	2.39E-03	2.41E-04	6.702	0.676	0.0572	0.0058	357.5	0.37
C11	2.53E-03	2.54E-04	7.077	0.713	0.0604	0.0061	361.1	0.29
C12	1.96E-03	1.98E-04	5.483	0.556	0.0468	0.0047	357.1	0.12
C13	1.89E-03	1.89E-04	5.284	0.530	0.0451	0.0045	356.6	0.12
C14	1.86E-03	1.87E-04	5.218	0.523	0.0446	0.0045	351.9	0.17
C15	1.97E-03	1.97E-04	5.516	0.552	0.0471	0.0047	350.6	0.20
C16	2.17E-03	2.18E-04	6.088	0.611	0.0520	0.0052	352.1	0.33
C17	2.62E-03	2.65E-04	7.354	0.741	0.0628	0.0063	358.8	0.51
C18	3.17E-03	3.19E-04	8.884	0.894	0.0759	0.0076	368.8	0.65
C19	3.31E-03	3.32E-04	9.291	0.932	0.0793	0.0080	376.4	0.61
D02	3.79E-03	3.79E-04	10.620	1.063	0.0907	0.0091	387.6	0.42
D03	3.52E-03	3.53E-04	9.869	0.989	0.0843	0.0084	385.1	0.33
D04	3.23E-03	3.24E-04	9.061	0.909	0.0774	0.0078	383.3	0.17
D13	1.83E-03	1.83E-04	5.117	0.512	0.0437	0.0044	350.1	0.12
D14	1.90E-03	1.90E-04	5.314	0.532	0.0454	0.0045	350.2	0.17
E03	4.38E-03	4.38E-04	12.262	1.227	0.1047	0.0105	392.8	0.47
F20	2.38E-04	2.42E-05	0.668	0.068	0.0057	0.0006	300.5	0.14
F21	1.75E-04	1.79E-05	0.491	0.050	0.0042	0.0004	295.1	0.12
F22	2.66E-04	2.67E-05	0.745	0.075	0.0064	0.0006	300.1	0.12
F23	1.17E-04	1.20E-05	0.327	0.034	0.0028	0.0003	298.5	0.12
F24	1.11E-04	1.11E-05	0.311	0.031	0.0027	0.0003	297.1	0.08
F25	1.06E-04	1.06E-05	0.297	0.030	0.0025	0.0003	297.1	0.00

Table C - 19. Run 3035 data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.74E-03	3.74E-04	10.538	1.054	0.0897	0.0090	380.6	0.58
B02	3.86E-03	3.86E-04	10.868	1.087	0.0925	0.0093	381.9	0.65
B03	3.71E-03	3.72E-04	10.461	1.047	0.0891	0.0089	379.6	0.60
B04	3.51E-03	3.52E-04	9.882	0.992	0.0841	0.0084	377.5	0.52
B13	2.03E-03	2.04E-04	5.729	0.575	0.0488	0.0049	348.6	0.28
B14	2.14E-03	2.16E-04	6.027	0.607	0.0513	0.0052	349.7	0.22
C01	3.72E-03	3.72E-04	10.486	1.049	0.0893	0.0089	381.5	0.73
C02	4.09E-03	4.09E-04	11.522	1.153	0.0981	0.0098	383.6	0.84
C03	3.72E-03	3.73E-04	10.484	1.049	0.0893	0.0089	381.7	0.60
C04	3.52E-03	3.53E-04	9.916	0.995	0.0844	0.0085	377.6	0.47
C05	3.12E-03	3.14E-04	8.781	0.885	0.0748	0.0075	373.5	0.29
C06	2.60E-03	2.63E-04	7.336	0.742	0.0625	0.0063	366.8	0.17
C07	2.10E-03	2.13E-04	5.918	0.600	0.0504	0.0051	359.2	0.14
C08	1.80E-03	1.80E-04	5.056	0.506	0.0431	0.0043	348.7	0.22
C09	2.13E-03	2.13E-04	6.011	0.601	0.0512	0.0051	349.6	0.44
C10	2.99E-03	4.98E-04	8.423	1.400	0.0717	0.0119	348.8	2.75
C11	2.47E-03	2.48E-04	6.967	0.699	0.0593	0.0060	355.1	0.58
C12	2.32E-03	2.33E-04	6.537	0.656	0.0557	0.0056	354.7	0.39
C13	2.18E-03	2.25E-04	6.145	0.635	0.0523	0.0054	355.6	0.14
C14	2.06E-03	2.10E-04	5.791	0.593	0.0493	0.0050	350.5	0.10
C15	2.11E-03	2.13E-04	5.938	0.599	0.0506	0.0051	348.2	0.22
C16	2.19E-03	2.20E-04	6.178	0.620	0.0526	0.0053	348.5	0.29
C17	2.43E-03	2.43E-04	6.848	0.685	0.0583	0.0058	353.3	0.43
C18	2.83E-03	2.83E-04	7.958	0.796	0.0678	0.0068	361.7	0.51
C19	3.03E-03	3.04E-04	8.546	0.855	0.0728	0.0073	369.1	0.61
D02	3.89E-03	3.89E-04	10.947	1.095	0.0932	0.0093	381.1	0.71
D03	3.75E-03	3.75E-04	10.565	1.057	0.0900	0.0090	379.7	0.62
D04	3.63E-03	3.64E-04	10.223	1.026	0.0870	0.0087	379.5	0.50
D13	1.99E-03	2.01E-04	5.616	0.568	0.0478	0.0048	348.2	0.17
D14	1.97E-03	1.99E-04	5.554	0.561	0.0473	0.0048	347.9	0.20
E03	4.67E-03	4.68E-04	13.155	1.319	0.1120	0.0112	386.4	0.73
F20	2.13E-04	2.15E-05	0.601	0.061	0.0051	0.0005	299.7	0.17
F21	1.57E-04	1.62E-05	0.443	0.046	0.0038	0.0004	294.5	0.10
F22	1.90E-04	1.91E-05	0.535	0.054	0.0046	0.0005	299.1	0.10
F23	1.41E-04	1.41E-05	0.398	0.040	0.0034	0.0003	298.4	0.14
F24	7.32E-05	7.35E-06	0.206	0.021	0.0018	0.0002	296.6	0.10
F25	7.47E-05	7.54E-06	0.210	0.021	0.0018	0.0002	296.6	0.14

Table C - 20. Run 3039 data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 0°.

Gauge	St	ΔSt	St×(ReD)^(1/2)	ΔSt×(ReD)^(1/2)	St×(ReD)^(1/5)	ΔSt×(ReD)^(1/5)	Tw (K)	ΔTw (K)
A03	3.40E-03	3.41E-04	9.571	0.960	0.0815	0.0082	368.5	1.63
B02	3.72E-03	3.73E-04	10.479	1.049	0.0892	0.0089	373.3	1.89
B03	3.25E-03	3.26E-04	9.168	0.919	0.0780	0.0078	366.3	1.64
B04	2.77E-03	2.77E-04	7.794	0.781	0.0663	0.0066	358.3	1.33
B13	1.99E-03	2.03E-04	5.607	0.571	0.0477	0.0049	344.2	0.76
B14	2.16E-03	2.19E-04	6.075	0.616	0.0517	0.0052	348.1	0.86
C01	3.74E-03	3.75E-04	10.545	1.056	0.0898	0.0090	376.5	2.00
C02	3.69E-03	3.69E-04	10.385	1.039	0.0884	0.0088	372.9	1.92
C03	3.24E-03	3.24E-04	9.138	0.914	0.0778	0.0078	365.7	1.64
C04	2.79E-03	2.80E-04	7.874	0.788	0.0670	0.0067	359.8	1.37
C05	2.32E-03	2.32E-04	6.530	0.654	0.0556	0.0056	349.7	1.11
C06	2.10E-03	2.11E-04	5.913	0.595	0.0503	0.0051	345.7	0.98
C07	1.93E-03	1.95E-04	5.444	0.548	0.0463	0.0047	342.2	0.89
C08	1.89E-03	1.89E-04	5.311	0.532	0.0452	0.0045	340.8	0.96
C09	2.24E-03	2.25E-04	6.313	0.632	0.0537	0.0054	348.2	1.30
C10	2.49E-03	2.53E-04	7.016	0.713	0.0597	0.0061	352.6	1.63
C11	2.17E-03	2.17E-04	6.102	0.611	0.0519	0.0052	346.9	1.28
C12	1.82E-03	1.83E-04	5.124	0.514	0.0436	0.0044	341.2	0.91
C13	1.91E-03	1.93E-04	5.389	0.543	0.0459	0.0046	342.5	0.83
C14	2.06E-03	2.08E-04	5.791	0.585	0.0493	0.0050	345.3	0.92
C15	2.33E-03	2.36E-04	6.579	0.665	0.0560	0.0057	351.7	0.96
C16	2.77E-03	2.82E-04	7.800	0.795	0.0664	0.0068	359.6	1.15
C17	3.23E-03	3.27E-04	9.096	0.920	0.0774	0.0078	366.4	1.45
C18	3.70E-03	3.71E-04	10.412	1.044	0.0886	0.0089	373.4	1.81
C19	3.69E-03	3.71E-04	10.409	1.045	0.0886	0.0089	375.7	1.92
D02	3.72E-03	3.72E-04	10.471	1.047	0.0891	0.0089	372.9	1.99
D03	3.30E-03	3.30E-04	9.286	0.929	0.0790	0.0079	366.2	1.75
D04	2.81E-03	2.81E-04	7.913	0.792	0.0674	0.0067	358.3	1.48
D13	1.93E-03	1.94E-04	5.437	0.547	0.0463	0.0047	342.8	0.84
D14	2.15E-03	2.19E-04	6.056	0.617	0.0516	0.0053	347.6	0.87
E03	3.53E-03	3.53E-04	9.936	0.994	0.0846	0.0085	369.9	1.88
F20	9.20E-05	9.41E-06	0.259	0.027	0.0022	0.0002	297.6	0.13
F21	8.46E-05	8.92E-06	0.238	0.025	0.0020	0.0002	297.4	0.08
F22	1.53E-04	1.55E-05	0.431	0.044	0.0037	0.0004	298.9	0.08
F23	1.76E-04	1.82E-05	0.497	0.051	0.0042	0.0004	299.6	0.19
F24	1.13E-04	1.39E-05	0.319	0.039	0.0027	0.0003	298.2	0.08
F25	1.26E-04	1.56E-05	0.356	0.044	0.0030	0.0004	298.6	0.11

Table C - 21. Run 3039 data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.46E-03	3.47E-04	9.739	0.975	0.0830	0.0083	377.3	0.48
B02	3.69E-03	3.69E-04	10.368	1.037	0.0884	0.0088	382.6	0.40
B03	3.59E-03	3.60E-04	10.097	1.013	0.0861	0.0086	376.6	0.56
B04	2.99E-03	3.01E-04	8.399	0.847	0.0716	0.0072	366.3	0.52
B13	2.02E-03	2.02E-04	5.670	0.568	0.0483	0.0048	349.1	0.33
B14	2.11E-03	2.12E-04	5.944	0.595	0.0507	0.0051	352.8	0.22
C01	3.61E-03	3.61E-04	10.149	1.015	0.0865	0.0087	385.8	0.35
C02	3.68E-03	3.68E-04	10.351	1.036	0.0882	0.0088	382.3	0.41
C03	3.35E-03	3.36E-04	9.413	0.944	0.0803	0.0080	374.4	0.50
C04	3.08E-03	3.11E-04	8.651	0.874	0.0738	0.0075	368.1	0.53
C05	2.60E-03	2.65E-04	7.314	0.745	0.0624	0.0064	357.0	0.56
C06	2.30E-03	2.38E-04	6.464	0.670	0.0551	0.0057	351.7	0.54
C07	1.88E-03	1.90E-04	5.295	0.536	0.0451	0.0046	346.6	0.31
C08	1.77E-03	1.77E-04	4.982	0.498	0.0425	0.0042	345.2	0.13
C09	2.12E-03	2.12E-04	5.951	0.595	0.0507	0.0051	353.9	0.25
C10	2.33E-03	2.34E-04	6.558	0.658	0.0559	0.0056	359.4	0.00
C11	2.52E-03	2.53E-04	7.092	0.710	0.0605	0.0061	355.4	0.48
C12	2.07E-03	2.12E-04	5.814	0.597	0.0496	0.0051	347.4	0.52
C13	2.03E-03	2.04E-04	5.692	0.573	0.0485	0.0049	347.8	0.38
C14	2.01E-03	2.01E-04	5.639	0.566	0.0481	0.0048	349.8	0.28
C15	2.15E-03	2.15E-04	6.051	0.606	0.0516	0.0052	355.8	0.25
C16	2.40E-03	2.40E-04	6.746	0.675	0.0575	0.0058	363.7	0.13
C17	2.83E-03	2.84E-04	7.946	0.797	0.0677	0.0068	372.0	0.13
C18	3.35E-03	3.36E-04	9.424	0.945	0.0803	0.0081	381.0	0.22
C19	3.42E-03	3.43E-04	9.620	0.964	0.0820	0.0082	384.2	0.25
D02	3.70E-03	3.70E-04	10.392	1.039	0.0886	0.0089	382.4	0.43
D03	3.38E-03	3.38E-04	9.493	0.951	0.0809	0.0081	375.2	0.45
D04	3.02E-03	3.05E-04	8.491	0.856	0.0724	0.0073	366.7	0.50
D13	1.94E-03	1.95E-04	5.461	0.548	0.0466	0.0047	347.5	0.31
D14	2.09E-03	2.09E-04	5.870	0.588	0.0500	0.0050	352.0	0.28
E03	3.54E-03	3.54E-04	9.944	0.996	0.0848	0.0085	379.1	0.47
F20	2.21E-04	2.28E-05	0.621	0.064	0.0053	0.0005	298.8	0.15
F21	1.61E-04	1.63E-05	0.452	0.046	0.0039	0.0004	298.3	0.09
F22	2.47E-04	2.47E-05	0.693	0.069	0.0059	0.0006	300.2	0.15
F23	8.34E-05	8.57E-06	0.235	0.024	0.0020	0.0002	299.5	0.09
F24	1.12E-04	1.13E-05	0.316	0.032	0.0027	0.0003	298.5	0.00
F25	1.04E-04	1.04E-05	0.292	0.029	0.0025	0.0002	298.7	0.13

Table C - 22. Run 3039 data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	$St\times(ReD)^{(1/2)}$	$\Delta St\times(ReD)^{(1/2)}$	$St\times(ReD)^{(1/5)}$	$\Delta St\times(ReD)^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.62E-03	3.62E-04	10.160	1.016	0.0867	0.0087	382.6	0.47
B02	3.75E-03	3.75E-04	10.516	1.052	0.0897	0.0090	387.4	0.43
B03	3.78E-03	3.78E-04	10.613	1.061	0.0906	0.0091	382.7	0.54
B04	3.41E-03	3.42E-04	9.571	0.960	0.0817	0.0082	372.9	0.61
B13	2.21E-03	2.22E-04	6.212	0.623	0.0530	0.0053	352.8	0.35
B14	2.25E-03	2.26E-04	6.326	0.634	0.0540	0.0054	356.1	0.38
C01	3.59E-03	3.59E-04	10.075	1.008	0.0860	0.0086	390.1	0.31
C02	3.77E-03	3.77E-04	10.581	1.058	0.0903	0.0090	387.3	0.47
C03	3.58E-03	3.58E-04	10.044	1.005	0.0857	0.0086	380.1	0.52
C04	3.54E-03	3.55E-04	9.942	0.997	0.0848	0.0085	375.1	0.65
C05	3.24E-03	3.27E-04	9.080	0.917	0.0775	0.0078	364.5	0.76
C06	3.26E-03	3.36E-04	9.141	0.941	0.0780	0.0080	360.5	0.97
C07	2.66E-03	2.87E-04	7.470	0.805	0.0638	0.0069	352.9	0.89
C08	2.18E-03	2.41E-04	6.128	0.674	0.0523	0.0058	349.0	0.70
C09	2.14E-03	2.14E-04	6.001	0.601	0.0512	0.0051	356.6	0.31
C10	2.22E-03	2.22E-04	6.232	0.623	0.0532	0.0053	361.5	0.13
C11	2.40E-03	2.40E-04	6.728	0.674	0.0574	0.0058	359.1	0.25
C12	2.51E-03	2.51E-04	7.035	0.704	0.0600	0.0060	353.7	0.50
C13	2.37E-03	2.40E-04	6.640	0.674	0.0567	0.0058	352.5	0.54
C14	2.27E-03	2.28E-04	6.356	0.639	0.0542	0.0055	353.7	0.41
C15	2.21E-03	2.21E-04	6.197	0.620	0.0529	0.0053	358.5	0.22
C16	2.30E-03	2.30E-04	6.446	0.646	0.0550	0.0055	365.3	0.13
C17	2.53E-03	2.55E-04	7.106	0.715	0.0606	0.0061	373.0	0.00
C18	2.97E-03	3.00E-04	8.325	0.842	0.0710	0.0072	382.4	0.00
C19	3.09E-03	3.12E-04	8.675	0.876	0.0740	0.0075	386.4	0.00
D02	3.75E-03	3.75E-04	10.526	1.053	0.0898	0.0090	387.2	0.41
D03	3.61E-03	3.61E-04	10.121	1.013	0.0864	0.0086	380.8	0.54
D04	3.48E-03	3.50E-04	9.772	0.981	0.0834	0.0084	373.5	0.67
D13	2.17E-03	2.17E-04	6.077	0.610	0.0519	0.0052	351.2	0.40
D14	2.17E-03	2.17E-04	6.094	0.610	0.0520	0.0052	355.1	0.35
E03	3.70E-03	3.70E-04	10.395	1.040	0.0887	0.0089	384.5	0.45
F20	2.19E-04	2.21E-05	0.615	0.062	0.0052	0.0005	299.6	0.09
F21	1.61E-04	1.61E-05	0.451	0.045	0.0039	0.0004	298.8	0.13
F22	1.74E-04	1.88E-05	0.489	0.053	0.0042	0.0005	300.4	0.15
F23	1.08E-04	1.10E-05	0.304	0.031	0.0026	0.0003	299.6	0.15
F24	8.35E-05	8.52E-06	0.234	0.024	0.0020	0.0002	298.5	0.15
F25	7.31E-05	7.47E-06	0.205	0.021	0.0018	0.0002	298.7	0.00

Table C - 23. Run 3039 data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.69E-03	3.69E-04	10.328	1.033	0.0882	0.0088	388.1	0.60
B02	3.72E-03	3.72E-04	10.410	1.041	0.0889	0.0089	392.1	0.53
B03	3.80E-03	3.80E-04	10.646	1.065	0.0909	0.0091	388.6	0.60
B04	3.64E-03	3.64E-04	10.193	1.020	0.0871	0.0087	380.1	0.79
B13	2.33E-03	2.33E-04	6.518	0.652	0.0557	0.0056	357.1	0.46
B14	2.37E-03	2.37E-04	6.627	0.663	0.0566	0.0057	360.1	0.44
C01	3.50E-03	3.50E-04	9.797	0.980	0.0837	0.0084	394.2	0.49
C02	3.77E-03	3.77E-04	10.567	1.057	0.0903	0.0090	392.3	0.57
C03	3.63E-03	3.63E-04	10.171	1.017	0.0869	0.0087	385.8	0.62
C04	3.72E-03	3.72E-04	10.419	1.042	0.0890	0.0089	382.3	0.78
C05	3.52E-03	3.53E-04	9.876	0.989	0.0844	0.0084	372.7	0.86
C06	3.80E-03	3.81E-04	10.651	1.068	0.0910	0.0091	371.3	1.10
C07	3.72E-03	3.77E-04	10.433	1.057	0.0891	0.0090	365.3	1.40
C08	3.64E-03	3.80E-04	10.188	1.065	0.0870	0.0091	361.9	1.66
C09	2.41E-03	2.42E-04	6.744	0.677	0.0576	0.0058	361.2	0.60
C10	2.23E-03	2.23E-04	6.248	0.625	0.0534	0.0053	364.1	0.34
C11	2.39E-03	2.39E-04	6.683	0.668	0.0571	0.0057	362.6	0.41
C12	2.35E-03	2.35E-04	6.579	0.658	0.0562	0.0056	358.0	0.42
C13	2.68E-03	2.68E-04	7.502	0.751	0.0641	0.0064	359.0	0.61
C14	2.51E-03	2.52E-04	7.019	0.705	0.0600	0.0060	358.9	0.60
C15	2.30E-03	2.30E-04	6.431	0.644	0.0549	0.0055	361.7	0.43
C16	2.23E-03	2.23E-04	6.242	0.624	0.0533	0.0053	367.0	0.18
C17	2.34E-03	2.34E-04	6.562	0.656	0.0560	0.0056	373.8	0.10
C18	2.61E-03	2.61E-04	7.303	0.732	0.0624	0.0063	382.6	0.00
C19	2.70E-03	2.71E-04	7.556	0.759	0.0645	0.0065	387.1	0.10
D02	3.72E-03	3.72E-04	10.428	1.043	0.0891	0.0089	392.0	0.54
D03	3.66E-03	3.66E-04	10.246	1.025	0.0875	0.0088	386.5	0.62
D04	3.68E-03	3.68E-04	10.317	1.032	0.0881	0.0088	380.8	0.80
D13	2.30E-03	2.31E-04	6.457	0.646	0.0552	0.0055	355.7	0.50
D14	2.29E-03	2.29E-04	6.405	0.641	0.0547	0.0055	358.8	0.42
E03	3.70E-03	3.70E-04	10.377	1.038	0.0886	0.0089	389.6	0.57
F20	1.88E-04	1.90E-05	0.528	0.053	0.0045	0.0005	300.0	0.10
F21	1.74E-04	1.75E-05	0.488	0.049	0.0042	0.0004	299.3	0.10
F22	1.53E-04	1.54E-05	0.428	0.043	0.0037	0.0004	300.4	0.10
F23	1.05E-04	1.05E-05	0.294	0.029	0.0025	0.0003	299.7	0.10
F24	8.66E-05	8.67E-06	0.243	0.024	0.0021	0.0002	298.6	0.14
F25	7.54E-05	7.61E-06	0.211	0.021	0.0018	0.0002	298.7	0.00

Table C - 24. Run 3029 data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 0°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.86E-03	3.87E-04	11.053	1.111	0.0932	0.0093	350.0	3.44
B02	4.22E-03	4.23E-04	12.090	1.214	0.1019	0.0102	356.0	3.58
B03	3.74E-03	3.74E-04	10.705	1.071	0.0903	0.0090	348.2	3.47
B04	3.38E-03	3.39E-04	9.673	0.972	0.0816	0.0082	344.1	3.07
B13	2.68E-03	2.73E-04	7.674	0.788	0.0647	0.0066	334.8	2.42
B14	2.98E-03	3.20E-04	8.525	0.935	0.0719	0.0078	339.2	2.38
C01	3.95E-03	3.95E-04	11.302	1.135	0.0953	0.0095	352.6	3.66
C02	4.02E-03	4.02E-04	11.513	1.153	0.0971	0.0097	352.1	3.61
C03	3.70E-03	3.70E-04	10.583	1.062	0.0892	0.0089	348.8	3.31
C04	3.30E-03	3.31E-04	9.445	0.948	0.0796	0.0080	343.0	3.02
C05	2.89E-03	2.90E-04	8.281	0.834	0.0698	0.0070	337.9	2.64
C06	2.59E-03	2.61E-04	7.428	0.752	0.0626	0.0063	334.0	2.35
C07	2.33E-03	2.35E-04	6.675	0.677	0.0563	0.0057	330.5	2.13
C08	2.29E-03	2.30E-04	6.563	0.663	0.0553	0.0056	329.9	2.15
C09	2.69E-03	2.69E-04	7.687	0.769	0.0648	0.0065	335.9	2.68
C10	3.13E-03	3.17E-04	8.961	0.916	0.0756	0.0077	341.6	2.89
C11	2.92E-03	3.02E-04	8.348	0.876	0.0704	0.0073	338.6	2.67
C13	2.56E-03	2.61E-04	7.330	0.755	0.0618	0.0063	333.0	2.33
C14	2.65E-03	2.84E-04	7.594	0.829	0.0640	0.0069	334.7	2.23
C15	2.95E-03	3.43E-04	8.434	1.005	0.0711	0.0084	338.7	2.22
C16	3.31E-03	3.85E-04	9.491	1.127	0.0800	0.0094	343.2	2.48
C17	3.61E-03	4.06E-04	10.330	1.187	0.0871	0.0099	347.0	2.74
C18	3.94E-03	4.24E-04	11.283	1.237	0.0951	0.0103	351.0	3.13
C19	4.08E-03	4.24E-04	11.673	1.230	0.0984	0.0103	354.2	3.45
D02	4.31E-03	4.38E-04	12.327	1.268	0.1039	0.0106	355.4	3.64
D03	3.95E-03	3.95E-04	11.297	1.135	0.0953	0.0095	350.7	3.55
D13	3.74E-03	3.74E-04	10.698	1.076	0.0902	0.0090	348.8	3.31
D14	3.38E-03	3.39E-04	9.679	0.974	0.0816	0.0082	344.4	3.02
E03	2.68E-03	2.87E-04	7.682	0.835	0.0648	0.0070	334.6	2.26
F20	3.05E-03	3.32E-04	8.738	0.971	0.0737	0.0081	339.9	2.40
F21	3.88E-03	3.89E-04	11.112	1.122	0.0937	0.0094	350.6	3.42
F22	5.93E-05	1.20E-05	0.170	0.034	0.0014	0.0003	297.0	0.14
F23	5.55E-05	1.04E-05	0.159	0.029	0.0013	0.0002	295.8	0.14
F24	1.04E-04	1.19E-05	0.298	0.033	0.0025	0.0003	297.7	0.22
F25	1.33E-04	1.62E-05	0.381	0.047	0.0032	0.0004	298.3	0.00

Table C - 25. Run 3029 data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.11E-03	4.11E-04	11.643	1.165	0.0988	0.0099	364.3	0.68
B02	4.35E-03	4.35E-04	12.318	1.232	0.1045	0.0105	370.2	0.64
B03	3.96E-03	3.96E-04	11.214	1.122	0.0951	0.0095	362.0	0.67
B04	3.84E-03	3.85E-04	10.890	1.091	0.0924	0.0093	358.2	0.72
B13	2.48E-03	2.48E-04	7.037	0.704	0.0597	0.0060	342.8	0.31
B14	2.55E-03	2.56E-04	7.228	0.725	0.0613	0.0062	346.4	0.28
C01	3.93E-03	3.93E-04	11.133	1.113	0.0944	0.0094	366.1	0.57
C02	4.17E-03	4.17E-04	11.812	1.182	0.1002	0.0100	366.2	0.65
C03	4.12E-03	4.13E-04	11.685	1.169	0.0991	0.0099	363.6	0.73
C04	3.73E-03	3.73E-04	10.560	1.057	0.0896	0.0090	356.7	0.68
C05	3.43E-03	3.44E-04	9.728	0.975	0.0825	0.0083	350.9	0.71
C06	3.20E-03	3.23E-04	9.073	0.915	0.0770	0.0078	346.4	0.74
C07	2.70E-03	2.72E-04	7.658	0.771	0.0650	0.0065	340.7	0.61
C08	2.32E-03	2.32E-04	6.578	0.658	0.0558	0.0056	338.3	0.36
C09	2.52E-03	2.53E-04	7.153	0.718	0.0607	0.0061	345.0	0.31
C10	2.84E-03	2.87E-04	8.042	0.814	0.0682	0.0069	351.3	0.28
C11	2.84E-03	2.84E-04	8.041	0.804	0.0682	0.0068	348.2	0.48
C13	2.47E-03	2.47E-04	7.008	0.701	0.0595	0.0059	341.3	0.39
C14	2.42E-03	2.42E-04	6.853	0.686	0.0581	0.0058	342.3	0.35
C15	2.41E-03	2.42E-04	6.826	0.686	0.0579	0.0058	344.9	0.28
C16	2.60E-03	2.62E-04	7.372	0.743	0.0625	0.0063	349.5	0.18
C17	2.83E-03	2.85E-04	8.007	0.809	0.0679	0.0069	353.9	0.18
C18	3.22E-03	3.25E-04	9.122	0.921	0.0774	0.0078	359.4	0.22
C19	3.55E-03	3.57E-04	10.060	1.012	0.0853	0.0086	364.9	0.35
D02	3.96E-03	3.97E-04	11.226	1.126	0.0952	0.0095	367.4	0.41
D03	4.02E-03	4.02E-04	11.388	1.139	0.0966	0.0097	364.3	0.57
D13	3.99E-03	3.99E-04	11.312	1.131	0.0960	0.0096	362.9	0.65
D14	3.77E-03	3.77E-04	10.689	1.069	0.0907	0.0091	358.2	0.66
E03	2.35E-03	2.35E-04	6.650	0.665	0.0564	0.0056	341.5	0.28
F20	2.58E-03	2.58E-04	7.311	0.733	0.0620	0.0062	347.1	0.25
F21	4.01E-03	4.01E-04	11.359	1.136	0.0964	0.0096	364.2	0.63
F22	2.18E-04	2.23E-05	0.619	0.063	0.0052	0.0005	298.4	0.09
F23	1.67E-04	1.72E-05	0.473	0.049	0.0040	0.0004	296.8	0.09
F24	2.49E-04	2.50E-05	0.707	0.071	0.0060	0.0006	299.1	0.00
F25	9.13E-05	9.33E-06	0.259	0.026	0.0022	0.0002	298.4	0.00

Table C - 26. Run 3029 data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.13E-03	4.13E-04	11.661	1.166	0.0992	0.0099	371.3	0.52
B02	4.26E-03	4.27E-04	12.027	1.203	0.1023	0.0102	376.6	0.46
B03	4.01E-03	4.01E-04	11.297	1.130	0.0961	0.0096	369.0	0.50
B04	3.97E-03	3.97E-04	11.200	1.120	0.0953	0.0095	365.9	0.57
B13	2.45E-03	2.45E-04	6.914	0.692	0.0588	0.0059	346.5	0.31
B14	2.43E-03	2.43E-04	6.848	0.685	0.0583	0.0058	349.2	0.30
C01	3.88E-03	3.88E-04	10.954	1.096	0.0932	0.0093	372.3	0.48
C02	4.30E-03	4.30E-04	12.115	1.212	0.1031	0.0103	373.6	0.60
C03	4.13E-03	4.13E-04	11.651	1.165	0.0991	0.0099	370.9	0.50
C04	3.82E-03	3.82E-04	10.768	1.077	0.0916	0.0092	364.0	0.52
C05	3.61E-03	3.61E-04	10.180	1.018	0.0866	0.0087	358.5	0.56
C06	3.55E-03	3.55E-04	10.002	1.002	0.0851	0.0085	354.7	0.67
C07	3.09E-03	3.11E-04	8.712	0.878	0.0741	0.0075	348.0	0.67
C08	2.41E-03	2.42E-04	6.797	0.681	0.0578	0.0058	342.7	0.35
C09	2.31E-03	2.32E-04	6.528	0.654	0.0555	0.0056	347.9	0.23
C10	2.46E-03	2.47E-04	6.947	0.697	0.0591	0.0059	353.5	0.13
C11	2.63E-03	2.64E-04	7.409	0.746	0.0630	0.0063	352.2	0.21
C13	2.60E-03	2.60E-04	7.323	0.733	0.0623	0.0062	346.1	0.40
C14	2.59E-03	2.60E-04	7.304	0.734	0.0621	0.0062	346.7	0.47
C15	2.41E-03	2.43E-04	6.793	0.685	0.0578	0.0058	347.8	0.38
C16	2.45E-03	2.46E-04	6.922	0.693	0.0589	0.0059	351.7	0.30
C17	2.51E-03	2.51E-04	7.088	0.709	0.0603	0.0060	355.5	0.19
C18	2.72E-03	2.73E-04	7.672	0.771	0.0653	0.0066	360.8	0.13
C19	3.04E-03	3.06E-04	8.568	0.863	0.0729	0.0073	367.3	0.19
D02	3.52E-03	3.54E-04	9.934	0.999	0.0845	0.0085	370.9	0.13
D03	3.96E-03	3.96E-04	11.176	1.118	0.0951	0.0095	370.5	0.42
D13	3.95E-03	3.95E-04	11.145	1.115	0.0948	0.0095	369.4	0.48
D14	3.84E-03	3.84E-04	10.837	1.084	0.0922	0.0092	365.2	0.55
E03	2.39E-03	2.39E-04	6.736	0.674	0.0573	0.0057	345.1	0.31
F20	2.53E-03	2.53E-04	7.141	0.714	0.0608	0.0061	350.3	0.28
F21	3.92E-03	3.92E-04	11.055	1.106	0.0940	0.0094	370.4	0.44
F22	1.96E-04	1.98E-05	0.553	0.056	0.0047	0.0005	299.0	0.16
F23	1.55E-04	1.58E-05	0.437	0.045	0.0037	0.0004	297.4	0.09
F24	1.75E-04	1.88E-05	0.494	0.053	0.0042	0.0005	299.5	0.09
F25	1.25E-04	1.26E-05	0.353	0.036	0.0030	0.0003	298.7	0.09

Table C - 27. Run 3029 data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.05E-03	4.05E-04	11.391	1.140	0.0971	0.0097	377.5	0.55
B02	4.13E-03	4.14E-04	11.627	1.164	0.0991	0.0099	382.2	0.46
B03	3.92E-03	3.92E-04	11.037	1.104	0.0941	0.0094	375.0	0.54
B04	3.93E-03	3.93E-04	11.065	1.107	0.0943	0.0094	372.5	0.61
B13	2.48E-03	2.49E-04	6.990	0.700	0.0596	0.0060	350.6	0.35
B14	2.55E-03	2.55E-04	7.170	0.717	0.0611	0.0061	353.2	0.35
C01	3.74E-03	3.74E-04	10.515	1.053	0.0896	0.0090	377.7	0.49
C02	4.42E-03	4.43E-04	12.439	1.245	0.1060	0.0106	381.0	0.76
C03	3.99E-03	4.00E-04	11.234	1.124	0.0957	0.0096	376.9	0.54
C04	3.78E-03	3.78E-04	10.619	1.062	0.0905	0.0090	370.2	0.59
C05	3.67E-03	3.67E-04	10.320	1.032	0.0879	0.0088	365.4	0.61
C06	3.78E-03	3.79E-04	10.629	1.065	0.0906	0.0091	363.0	0.81
C07	3.61E-03	3.64E-04	10.155	1.024	0.0865	0.0087	357.1	0.96
C08	2.89E-03	3.00E-04	8.136	0.844	0.0693	0.0072	349.4	0.86
C09	2.28E-03	2.28E-04	6.408	0.642	0.0546	0.0055	350.9	0.39
C10	2.34E-03	2.34E-04	6.595	0.659	0.0562	0.0056	355.8	0.24
C11	2.39E-03	2.40E-04	6.734	0.674	0.0574	0.0057	354.7	0.20
C13	2.47E-03	2.48E-04	6.962	0.698	0.0593	0.0060	350.1	0.31
C14	2.59E-03	2.59E-04	7.273	0.730	0.0620	0.0062	351.5	0.31
C15	2.75E-03	2.75E-04	7.733	0.773	0.0659	0.0066	353.4	0.49
C16	2.58E-03	2.58E-04	7.258	0.726	0.0618	0.0062	355.5	0.42
C17	2.49E-03	2.49E-04	7.002	0.700	0.0597	0.0060	358.0	0.29
C18	2.54E-03	2.54E-04	7.138	0.715	0.0608	0.0061	362.4	0.26
C19	2.67E-03	2.69E-04	7.515	0.757	0.0640	0.0065	368.7	0.20
D02	3.15E-03	3.16E-04	8.851	0.890	0.0754	0.0076	373.1	0.20
D03	3.81E-03	3.81E-04	10.713	1.073	0.0913	0.0091	375.8	0.47
D13	3.81E-03	3.81E-04	10.710	1.072	0.0913	0.0091	374.9	0.47
D14	3.76E-03	3.76E-04	10.576	1.058	0.0901	0.0090	371.3	0.58
E03	2.47E-03	2.47E-04	6.950	0.695	0.0592	0.0059	349.4	0.41
F20	2.60E-03	2.60E-04	7.306	0.731	0.0623	0.0062	354.3	0.41
F21	3.75E-03	3.75E-04	10.539	1.055	0.0898	0.0090	375.4	0.41
F22	1.66E-04	1.78E-05	0.467	0.050	0.0040	0.0004	299.3	0.00
F23	1.54E-04	1.54E-05	0.432	0.043	0.0037	0.0004	297.7	0.14
F24	1.59E-04	1.89E-05	0.447	0.053	0.0038	0.0005	299.6	0.12
F25	1.49E-04	1.55E-05	0.420	0.043	0.0036	0.0004	299.1	0.00

Table C - 28. Run 3029 data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.91E-03	3.91E-04	10.958	1.096	0.0936	0.0094	383.3	0.41
B02	3.91E-03	3.92E-04	10.965	1.098	0.0936	0.0094	387.3	0.33
B03	3.81E-03	3.81E-04	10.682	1.068	0.0912	0.0091	380.8	0.48
B04	3.89E-03	3.89E-04	10.895	1.090	0.0930	0.0093	379.1	0.50
B13	2.33E-03	2.33E-04	6.531	0.653	0.0558	0.0056	353.9	0.22
B14	2.42E-03	2.43E-04	6.783	0.680	0.0579	0.0058	356.9	0.28
C01	3.55E-03	3.56E-04	9.964	0.997	0.0851	0.0085	382.7	0.31
C02	4.47E-03	4.47E-04	12.532	1.253	0.1070	0.0107	389.0	0.61
C03	3.89E-03	3.89E-04	10.902	1.090	0.0931	0.0093	382.7	0.43
C04	3.77E-03	3.77E-04	10.577	1.058	0.0903	0.0090	376.8	0.50
C05	3.75E-03	3.75E-04	10.515	1.052	0.0898	0.0090	372.7	0.59
C06	3.97E-03	3.97E-04	11.136	1.114	0.0951	0.0095	372.0	0.67
C07	4.06E-03	4.07E-04	11.392	1.141	0.0973	0.0097	368.1	0.85
C08	3.94E-03	4.00E-04	11.050	1.122	0.0944	0.0096	362.1	1.10
C09	2.74E-03	2.81E-04	7.678	0.789	0.0656	0.0067	357.0	0.70
C10	2.46E-03	2.48E-04	6.907	0.694	0.0590	0.0059	359.7	0.41
C11	2.47E-03	2.47E-04	6.924	0.693	0.0591	0.0059	358.7	0.35
C13	2.42E-03	2.42E-04	6.781	0.678	0.0579	0.0058	353.8	0.33
C14	2.44E-03	2.44E-04	6.825	0.683	0.0583	0.0058	355.1	0.28
C15	2.61E-03	2.61E-04	7.303	0.731	0.0624	0.0062	357.9	0.28
C16	2.75E-03	2.75E-04	7.701	0.770	0.0658	0.0066	360.6	0.43
C17	2.46E-03	2.46E-04	6.892	0.689	0.0589	0.0059	361.1	0.28
C18	2.46E-03	2.46E-04	6.886	0.689	0.0588	0.0059	364.6	0.18
C19	2.43E-03	2.43E-04	6.821	0.682	0.0582	0.0058	370.1	0.13
D02	2.90E-03	2.90E-04	8.131	0.814	0.0694	0.0069	375.2	0.13
D03	3.70E-03	3.70E-04	10.368	1.037	0.0885	0.0089	381.0	0.43
D13	3.74E-03	3.74E-04	10.478	1.048	0.0895	0.0089	380.5	0.47
D14	3.79E-03	3.79E-04	10.617	1.062	0.0907	0.0091	377.7	0.54
E03	2.36E-03	2.36E-04	6.606	0.661	0.0564	0.0056	353.2	0.22
F20	2.41E-03	2.42E-04	6.758	0.678	0.0577	0.0058	357.7	0.25
F21	3.70E-03	3.70E-04	10.375	1.038	0.0886	0.0089	380.9	0.45
F22	1.26E-04	1.38E-05	0.354	0.039	0.0030	0.0003	299.3	0.00
F23	1.45E-04	1.45E-05	0.406	0.041	0.0035	0.0003	298.1	0.09
F24	2.38E-04	2.61E-05	0.667	0.073	0.0057	0.0006	300.6	0.13
F25	1.86E-04	1.86E-05	0.522	0.052	0.0045	0.0004	299.8	0.09

Table C - 29. Run 3029 data, Mach 8 nozzle, $Re_{\infty} = 15.8\times10^6$/ft, α = 20°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.81E-03	3.81E-04	10.659	1.066	0.0911	0.0091	388.4	0.38
B02	3.75E-03	3.75E-04	10.494	1.050	0.0897	0.0090	391.5	0.35
B03	3.73E-03	3.73E-04	10.425	1.043	0.0891	0.0089	386.0	0.41
B04	3.86E-03	3.86E-04	10.801	1.080	0.0923	0.0092	385.1	0.43
B13	2.28E-03	2.28E-04	6.366	0.637	0.0544	0.0054	357.1	0.28
B14	2.30E-03	2.30E-04	6.444	0.644	0.0551	0.0055	359.6	0.25
C01	3.43E-03	3.43E-04	9.590	0.959	0.0820	0.0082	387.1	0.33
C02	4.50E-03	4.50E-04	12.598	1.260	0.1077	0.0108	396.3	0.59
C03	3.80E-03	3.80E-04	10.628	1.063	0.0909	0.0091	388.0	0.41
C04	3.77E-03	3.77E-04	10.543	1.054	0.0901	0.0090	382.8	0.47
C05	3.77E-03	3.77E-04	10.553	1.055	0.0902	0.0090	379.5	0.54
C06	4.04E-03	4.04E-04	11.314	1.131	0.0967	0.0097	380.0	0.63
C07	4.23E-03	4.23E-04	11.825	1.183	0.1011	0.0101	377.9	0.72
C08	4.41E-03	4.42E-04	12.349	1.235	0.1056	0.0106	374.9	0.92
C09	3.77E-03	3.85E-04	10.561	1.077	0.0903	0.0092	368.7	1.10
C10	3.00E-03	3.05E-04	8.396	0.853	0.0718	0.0073	366.7	0.72
C11	2.54E-03	2.54E-04	7.100	0.710	0.0607	0.0061	363.1	0.40
C13	2.44E-03	2.44E-04	6.832	0.683	0.0584	0.0058	357.8	0.33
C14	2.30E-03	2.30E-04	6.427	0.643	0.0549	0.0055	358.0	0.25
C15	2.35E-03	2.36E-04	6.579	0.660	0.0562	0.0056	360.6	0.25
C16	2.66E-03	2.67E-04	7.445	0.746	0.0636	0.0064	364.9	0.22
C17	2.66E-03	2.67E-04	7.446	0.747	0.0637	0.0064	365.4	0.47
C18	2.46E-03	2.46E-04	6.879	0.688	0.0588	0.0059	367.4	0.25
C19	2.43E-03	2.43E-04	6.787	0.679	0.0580	0.0058	372.4	0.22
D02	2.90E-03	2.90E-04	8.106	0.812	0.0693	0.0069	378.0	0.33
D03	3.62E-03	3.62E-04	10.132	1.014	0.0866	0.0087	385.8	0.38
D13	3.70E-03	3.70E-04	10.349	1.035	0.0885	0.0088	385.9	0.41
D14	3.78E-03	3.78E-04	10.570	1.057	0.0904	0.0090	383.8	0.48
E03	2.28E-03	2.28E-04	6.377	0.638	0.0545	0.0055	356.3	0.25
F20	2.30E-03	2.31E-04	6.445	0.645	0.0551	0.0055	360.3	0.22
F21	3.66E-03	3.66E-04	10.229	1.023	0.0874	0.0087	386.1	0.38
F22	1.70E-04	1.73E-05	0.475	0.048	0.0041	0.0004	299.9	0.00
F23	1.78E-04	1.78E-05	0.499	0.050	0.0043	0.0004	298.6	0.00
F24	1.38E-04	1.47E-05	0.386	0.041	0.0033	0.0004	300.4	0.13
F25	2.35E-04	2.50E-05	0.659	0.070	0.0056	0.0006	300.6	0.13

Table C - 30. Run 3029 data, Mach 8 nozzle, $Re_\infty = 15.8\times10^6$/ft, α = 24°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.73E-03	3.73E-04	10.374	1.038	0.0890	0.0089	393.3	0.41
B02	3.61E-03	3.62E-04	10.046	1.005	0.0862	0.0086	395.6	0.41
B03	3.66E-03	3.66E-04	10.165	1.017	0.0872	0.0087	390.9	0.42
B04	3.81E-03	3.81E-04	10.593	1.059	0.0909	0.0091	390.8	0.44
B13	2.23E-03	2.23E-04	6.191	0.619	0.0531	0.0053	360.1	0.24
B14	2.25E-03	2.25E-04	6.248	0.625	0.0536	0.0054	362.5	0.24
C01	3.32E-03	3.32E-04	9.224	0.923	0.0792	0.0079	391.3	0.33
C02	4.46E-03	4.46E-04	12.388	1.239	0.1063	0.0106	403.0	0.54
C03	3.75E-03	3.75E-04	10.418	1.042	0.0894	0.0089	393.2	0.44
C04	3.75E-03	3.75E-04	10.424	1.043	0.0895	0.0089	388.7	0.46
C05	3.80E-03	3.80E-04	10.558	1.056	0.0906	0.0091	386.0	0.57
C06	4.03E-03	4.03E-04	11.194	1.120	0.0961	0.0096	387.3	0.55
C07	4.20E-03	4.20E-04	11.681	1.169	0.1003	0.0100	386.2	0.65
C08	4.43E-03	4.43E-04	12.301	1.231	0.1056	0.0106	385.1	0.75
C09	4.27E-03	4.27E-04	11.873	1.188	0.1019	0.0102	381.5	0.96
C10	3.65E-03	3.67E-04	10.133	1.021	0.0870	0.0088	376.9	0.94
C11	2.66E-03	2.67E-04	7.387	0.741	0.0634	0.0064	368.1	0.49
C13	2.50E-03	2.50E-04	6.954	0.696	0.0597	0.0060	362.2	0.42
C14	2.28E-03	2.28E-04	6.327	0.633	0.0543	0.0054	361.1	0.35
C15	2.23E-03	2.23E-04	6.203	0.621	0.0532	0.0053	362.8	0.17
C16	2.38E-03	2.40E-04	6.627	0.668	0.0569	0.0057	367.3	0.12
C17	2.66E-03	2.67E-04	7.404	0.743	0.0636	0.0064	370.1	0.29
C18	2.61E-03	2.61E-04	7.241	0.725	0.0622	0.0062	371.4	0.37
C19	2.54E-03	2.55E-04	7.071	0.708	0.0607	0.0061	376.1	0.37
D02	3.09E-03	3.10E-04	8.602	0.861	0.0738	0.0074	382.7	0.46
D03	3.55E-03	3.55E-04	9.857	0.986	0.0846	0.0085	390.4	0.37
D13	3.64E-03	3.64E-04	10.118	1.012	0.0868	0.0087	391.0	0.46
D14	3.79E-03	3.79E-04	10.536	1.054	0.0904	0.0090	389.8	0.47
E03	2.24E-03	2.24E-04	6.221	0.622	0.0534	0.0053	359.4	0.26
F20	2.17E-03	2.17E-04	6.031	0.603	0.0518	0.0052	362.6	0.24
F21	3.61E-03	3.61E-04	10.033	1.004	0.0861	0.0086	391.1	0.42
F22	1.45E-04	1.46E-05	0.404	0.041	0.0035	0.0003	300.1	0.12
F23	2.13E-04	2.37E-05	0.593	0.066	0.0051	0.0006	299.3	0.12
F24	2.17E-04	2.19E-05	0.603	0.061	0.0052	0.0005	301.1	0.00
F25	2.88E-04	2.89E-05	0.801	0.080	0.0069	0.0007	301.8	0.08

Table C - 31. Run 3033 data, Mach 8 nozzle, $Re_\infty = 15.9\times10^6$/ft, α = 0°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.41E-03	3.43E-04	9.705	0.978	0.0822	0.0083	369.3	1.37
B02	3.67E-03	3.69E-04	10.435	1.050	0.0884	0.0089	373.1	1.50
B03	3.29E-03	3.32E-04	9.365	0.946	0.0793	0.0080	367.7	1.26
B04	2.90E-03	2.95E-04	8.251	0.841	0.0699	0.0071	361.7	1.05
B13	2.38E-03	2.38E-04	6.768	0.677	0.0573	0.0057	347.0	1.27
B14	2.67E-03	2.67E-04	7.579	0.758	0.0642	0.0064	352.2	1.46
C01	3.97E-03	4.01E-04	11.291	1.144	0.0956	0.0097	383.4	1.53
C02	3.75E-03	3.78E-04	10.652	1.079	0.0902	0.0091	375.6	1.39
C03	3.22E-03	3.27E-04	9.148	0.933	0.0775	0.0079	367.0	1.17
C04	2.89E-03	2.95E-04	8.217	0.842	0.0696	0.0071	361.8	0.99
C05	2.54E-03	2.59E-04	7.216	0.740	0.0611	0.0062	354.3	0.88
C06	2.33E-03	2.38E-04	6.621	0.681	0.0561	0.0057	349.2	0.89
C07	2.20E-03	2.27E-04	6.265	0.648	0.0530	0.0055	346.2	0.88
C08	2.12E-03	2.16E-04	6.031	0.616	0.0511	0.0052	344.6	0.86
C09	2.36E-03	2.38E-04	6.723	0.679	0.0569	0.0057	351.1	1.02
C10	2.80E-03	2.80E-04	7.961	0.798	0.0674	0.0068	357.9	1.34
C11	2.74E-03	2.75E-04	7.788	0.780	0.0659	0.0066	353.4	1.62
C12	2.31E-03	2.33E-04	6.569	0.664	0.0556	0.0056	346.0	1.24
C13	2.33E-03	2.33E-04	6.630	0.664	0.0561	0.0056	345.6	1.26
C14	2.50E-03	2.50E-04	7.108	0.713	0.0602	0.0060	348.9	1.25
C15	2.95E-03	2.95E-04	8.373	0.840	0.0709	0.0071	356.7	1.47
C16	3.34E-03	3.34E-04	9.493	0.951	0.0804	0.0080	362.8	1.71
C17	3.75E-03	3.75E-04	10.654	1.066	0.0902	0.0090	369.9	1.91
C18	3.99E-03	3.99E-04	11.340	1.134	0.0960	0.0096	373.9	2.00
C19	3.94E-03	3.94E-04	11.209	1.122	0.0949	0.0095	376.3	2.01
D02	3.71E-03	3.75E-04	10.539	1.069	0.0892	0.0090	373.2	1.46
D03	3.35E-03	3.39E-04	9.509	0.967	0.0805	0.0082	368.2	1.24
D04	3.02E-03	3.08E-04	8.584	0.879	0.0727	0.0074	363.2	1.07
D13	2.45E-03	2.45E-04	6.962	0.696	0.0590	0.0059	347.2	1.38
D14	2.67E-03	2.67E-04	7.596	0.760	0.0643	0.0064	352.2	1.39
E03	3.66E-03	3.73E-04	10.407	1.066	0.0881	0.0090	373.0	1.36
F20	7.59E-05	9.13E-06	0.216	0.026	0.0018	0.0002	299.4	0.09
F21	6.86E-05	7.69E-06	0.195	0.022	0.0017	0.0002	298.2	0.15
F22	1.15E-04	1.15E-05	0.327	0.033	0.0028	0.0003	300.2	0.12
F23	1.21E-04	1.24E-05	0.345	0.035	0.0029	0.0003	300.2	0.17
F24	7.15E-05	7.81E-06	0.203	0.022	0.0017	0.0002	299.2	0.09
F25	7.64E-05	8.00E-06	0.217	0.023	0.0018	0.0002	299.3	0.09

Table C - 32. Run 3033 data, Mach 8 nozzle, $Re_\infty = 15.9\times10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.90E-03	2.92E-04	8.170	0.823	0.0695	0.0070	374.5	0.00
B02	3.34E-03	3.36E-04	9.425	0.947	0.0802	0.0081	380.2	0.18
B03	2.76E-03	2.79E-04	7.795	0.787	0.0663	0.0067	372.5	0.13
B04	2.34E-03	2.35E-04	6.594	0.663	0.0561	0.0056	364.9	0.13
B13	2.40E-03	2.40E-04	6.759	0.676	0.0575	0.0058	353.9	0.35
B14	2.83E-03	2.83E-04	7.977	0.799	0.0678	0.0068	360.6	0.47
C01	3.65E-03	3.66E-04	10.301	1.033	0.0876	0.0088	391.1	0.33
C02	3.27E-03	3.29E-04	9.224	0.928	0.0784	0.0079	381.6	0.22
C03	2.62E-03	2.64E-04	7.397	0.746	0.0629	0.0063	371.0	0.00
C04	2.27E-03	2.28E-04	6.394	0.644	0.0544	0.0055	364.5	0.13
C05	2.03E-03	2.04E-04	5.738	0.577	0.0488	0.0049	357.1	0.18
C06	1.91E-03	1.91E-04	5.388	0.539	0.0458	0.0046	352.0	0.18
C07	1.84E-03	1.84E-04	5.184	0.519	0.0441	0.0044	349.2	0.13
C08	2.00E-03	2.01E-04	5.655	0.567	0.0481	0.0048	349.1	0.28
C09	2.47E-03	2.48E-04	6.981	0.700	0.0594	0.0060	357.8	0.38
C10	2.59E-03	2.62E-04	7.323	0.739	0.0623	0.0063	364.7	0.13
C11	2.33E-03	2.35E-04	6.572	0.663	0.0559	0.0056	359.3	0.22
C12	1.76E-03	2.24E-04	4.966	0.634	0.0422	0.0054	351.0	0.33
C13	2.27E-03	2.27E-04	6.410	0.642	0.0545	0.0055	352.1	0.22
C14	2.65E-03	2.65E-04	7.487	0.749	0.0637	0.0064	357.0	0.38
C15	3.14E-03	3.14E-04	8.850	0.885	0.0753	0.0075	366.1	0.47
C16	3.47E-03	3.47E-04	9.793	0.979	0.0833	0.0083	372.8	0.50
C17	3.80E-03	3.80E-04	10.737	1.074	0.0913	0.0091	380.4	0.43
C18	3.99E-03	3.99E-04	11.264	1.127	0.0958	0.0096	384.6	0.47
C19	3.87E-03	3.87E-04	10.924	1.093	0.0929	0.0093	386.8	0.45
D02	3.21E-03	3.23E-04	9.065	0.912	0.0771	0.0078	379.4	0.22
D03	2.71E-03	2.72E-04	7.634	0.769	0.0649	0.0065	372.3	0.13
D04	2.33E-03	2.35E-04	6.586	0.664	0.0560	0.0056	366.0	0.00
D13	2.39E-03	2.39E-04	6.749	0.675	0.0574	0.0057	354.1	0.28
D14	2.84E-03	2.84E-04	8.012	0.801	0.0681	0.0068	360.9	0.40
E03	3.03E-03	3.06E-04	8.562	0.864	0.0728	0.0073	378.0	0.13
F20	1.05E-04	1.05E-05	0.297	0.030	0.0025	0.0003	299.8	0.13
F21	1.09E-04	1.09E-05	0.307	0.031	0.0026	0.0003	298.7	0.09
F22	1.08E-04	1.11E-05	0.304	0.031	0.0026	0.0003	300.5	0.00
F23	2.66E-04	2.67E-05	0.751	0.075	0.0064	0.0006	301.7	0.00
F24	1.72E-04	1.76E-05	0.485	0.050	0.0041	0.0004	300.2	0.00
F25	2.37E-04	2.42E-05	0.668	0.068	0.0057	0.0006	300.7	0.13

Table C - 33. Run 3033 data, Mach 8 nozzle, $Re_{\infty} = 15.9\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.69E-03	2.69E-04	7.560	0.756	0.0644	0.0064	375.9	0.13
B02	3.06E-03	3.07E-04	8.616	0.863	0.0734	0.0074	382.3	0.00
B03	2.57E-03	2.57E-04	7.242	0.724	0.0617	0.0062	373.7	0.19
B04	2.29E-03	2.29E-04	6.435	0.644	0.0548	0.0055	366.2	0.19
B13	2.59E-03	2.61E-04	7.291	0.734	0.0621	0.0062	358.3	0.41
B14	3.18E-03	3.21E-04	8.957	0.904	0.0763	0.0077	366.8	0.60
C01	3.34E-03	3.36E-04	9.412	0.945	0.0802	0.0080	393.6	0.13
C02	2.95E-03	2.96E-04	8.310	0.834	0.0708	0.0071	383.1	0.00
C03	2.47E-03	2.47E-04	6.947	0.695	0.0592	0.0059	372.1	0.00
C04	2.23E-03	2.24E-04	6.292	0.630	0.0536	0.0054	365.7	0.13
C05	2.13E-03	2.14E-04	5.994	0.604	0.0510	0.0051	358.9	0.30
C06	2.11E-03	2.12E-04	5.933	0.598	0.0505	0.0051	354.8	0.31
C07	2.20E-03	2.25E-04	6.207	0.632	0.0529	0.0054	352.9	0.46
C08	2.38E-03	2.39E-04	6.711	0.674	0.0572	0.0057	353.9	0.42
C09	2.43E-03	2.44E-04	6.854	0.687	0.0584	0.0059	361.7	0.25
C10	2.29E-03	2.29E-04	6.451	0.646	0.0549	0.0055	366.1	0.13
C11	2.11E-03	2.11E-04	5.935	0.594	0.0505	0.0051	360.6	0.13
C12	-3.32E-03	8.07E-04	-9.334	2.270	-0.0795	0.0193	326.4	4.61
C13	2.33E-03	2.34E-04	6.559	0.659	0.0559	0.0056	355.4	0.40
C14	2.88E-03	2.90E-04	8.106	0.815	0.0690	0.0069	362.2	0.50
C15	3.30E-03	3.31E-04	9.300	0.932	0.0792	0.0079	371.7	0.50
C16	3.55E-03	3.55E-04	10.003	1.001	0.0852	0.0085	378.3	0.46
C17	3.80E-03	3.80E-04	10.691	1.069	0.0911	0.0091	385.7	0.44
C18	3.92E-03	3.92E-04	11.036	1.104	0.0940	0.0094	389.6	0.38
C19	3.75E-03	3.75E-04	10.561	1.057	0.0900	0.0090	391.5	0.35
D02	2.92E-03	2.92E-04	8.215	0.823	0.0700	0.0070	380.9	0.00
D03	2.53E-03	2.53E-04	7.115	0.712	0.0606	0.0061	373.4	0.00
D04	2.28E-03	2.29E-04	6.431	0.644	0.0548	0.0055	367.1	0.00
D13	2.51E-03	2.53E-04	7.071	0.712	0.0602	0.0061	358.0	0.42
D14	3.06E-03	3.08E-04	8.615	0.866	0.0734	0.0074	366.3	0.52
E03	2.69E-03	2.70E-04	7.586	0.760	0.0646	0.0065	378.8	0.13
F20	7.29E-05	7.67E-06	0.205	0.022	0.0017	0.0002	299.9	0.00
F21	7.24E-05	7.62E-06	0.204	0.021	0.0017	0.0002	298.8	0.16
F22	1.35E-04	1.36E-05	0.380	0.038	0.0032	0.0003	300.9	0.09
F23	1.87E-04	2.03E-05	0.527	0.057	0.0045	0.0005	302.1	0.13
F24	1.55E-04	1.57E-05	0.436	0.044	0.0037	0.0004	300.7	0.09
F25	2.12E-04	2.15E-05	0.598	0.061	0.0051	0.0005	301.4	0.09

Table C - 34. Run 3033 data, Mach 8 nozzle, $Re_\infty = 15.9\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.54E-03	2.55E-04	7.132	0.714	0.0609	0.0061	377.6	0.24
B02	2.77E-03	2.78E-04	7.763	0.780	0.0662	0.0067	383.7	0.10
B03	2.49E-03	2.50E-04	6.991	0.700	0.0597	0.0060	375.7	0.24
B04	2.33E-03	2.33E-04	6.530	0.653	0.0557	0.0056	368.9	0.37
B13	3.26E-03	3.40E-04	9.160	0.953	0.0782	0.0081	366.6	1.27
B14	3.66E-03	3.67E-04	10.257	1.029	0.0875	0.0088	375.7	1.05
C01	2.97E-03	2.98E-04	8.329	0.837	0.0711	0.0071	395.0	0.14
C02	2.69E-03	2.70E-04	7.550	0.757	0.0644	0.0065	384.1	0.14
C03	2.42E-03	2.42E-04	6.778	0.678	0.0578	0.0058	374.1	0.31
C04	2.37E-03	2.37E-04	6.657	0.666	0.0568	0.0057	368.8	0.37
C05	2.39E-03	2.39E-04	6.702	0.672	0.0572	0.0057	363.3	0.53
C06	2.53E-03	2.56E-04	7.086	0.718	0.0605	0.0061	360.4	0.78
C07	2.40E-03	2.40E-04	6.737	0.674	0.0575	0.0058	358.4	0.56
C08	2.32E-03	2.32E-04	6.496	0.652	0.0554	0.0056	358.3	0.43
C09	2.32E-03	2.32E-04	6.511	0.651	0.0556	0.0056	364.7	0.40
C10	2.22E-03	2.22E-04	6.226	0.623	0.0531	0.0053	368.1	0.28
C11	2.02E-03	2.02E-04	5.676	0.568	0.0484	0.0048	362.4	0.20
C12	4.81E-03	2.89E-03	13.495	8.096	0.1152	0.0691	331.5	14.13
C13	2.94E-03	3.07E-04	8.241	0.860	0.0703	0.0073	362.6	1.14
C14	3.38E-03	3.42E-04	9.474	0.959	0.0809	0.0082	370.3	1.08
C15	3.58E-03	3.59E-04	10.047	1.007	0.0857	0.0086	378.9	0.89
C16	3.63E-03	3.64E-04	10.199	1.020	0.0870	0.0087	384.4	0.72
C17	3.77E-03	3.77E-04	10.569	1.057	0.0902	0.0090	391.0	0.62
C18	3.81E-03	3.81E-04	10.681	1.069	0.0912	0.0091	394.3	0.55
C19	3.59E-03	3.59E-04	10.070	1.008	0.0859	0.0086	395.8	0.50
D02	2.73E-03	2.73E-04	7.656	0.767	0.0653	0.0065	382.4	0.00
D03	2.45E-03	2.45E-04	6.868	0.687	0.0586	0.0059	375.2	0.20
D04	2.37E-03	2.37E-04	6.656	0.666	0.0568	0.0057	369.9	0.33
D13	3.15E-03	3.25E-04	8.843	0.911	0.0755	0.0078	365.9	1.15
D14	3.51E-03	3.54E-04	9.836	0.992	0.0839	0.0085	374.3	1.06
E03	2.59E-03	2.59E-04	7.269	0.728	0.0620	0.0062	380.2	0.24
F20	6.18E-05	6.22E-06	0.173	0.017	0.0015	0.0001	299.8	0.14
F21	6.37E-05	6.37E-06	0.179	0.018	0.0015	0.0002	298.8	0.17
F22	1.56E-04	1.59E-05	0.437	0.045	0.0037	0.0004	301.3	0.10
F23	1.52E-04	1.61E-05	0.426	0.045	0.0036	0.0004	302.1	0.10
F24	1.60E-04	1.62E-05	0.450	0.045	0.0038	0.0004	301.1	0.10
F25	1.71E-04	1.82E-05	0.480	0.051	0.0041	0.0004	301.7	0.10

Table C - 35. Run 3049 data, Mach 8 nozzle, $Re_\infty = 16.0\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.82E-03	3.85E-04	10.867	1.097	0.0919	0.0093	370.9	3.23
B02	3.81E-03	3.83E-04	10.846	1.089	0.0918	0.0092	370.4	3.36
B04	3.51E-03	3.53E-04	9.998	1.005	0.0846	0.0085	366.4	3.00
B13	2.37E-03	2.38E-04	6.736	0.677	0.0570	0.0057	342.8	2.49
B14	2.37E-03	2.37E-04	6.733	0.675	0.0570	0.0057	344.1	2.42
C01	3.65E-03	3.67E-04	10.400	1.044	0.0880	0.0088	370.8	3.35
C02	3.82E-03	3.83E-04	10.886	1.090	0.0921	0.0092	371.1	3.37
C03	3.66E-03	3.67E-04	10.421	1.044	0.0882	0.0088	368.4	3.21
C04	3.51E-03	3.51E-04	9.979	1.000	0.0844	0.0085	366.6	3.05
C05	3.42E-03	3.45E-04	9.742	0.982	0.0824	0.0083	366.5	2.81
C06	3.15E-03	3.20E-04	8.957	0.910	0.0758	0.0077	361.1	2.60
C07	2.84E-03	2.99E-04	8.075	0.852	0.0683	0.0072	355.5	2.21
C08	2.36E-03	2.58E-04	6.709	0.735	0.0568	0.0062	346.2	1.83
C09	2.23E-03	2.29E-04	6.359	0.651	0.0538	0.0055	344.9	2.03
C10	2.41E-03	2.43E-04	6.859	0.690	0.0580	0.0058	348.3	2.26
C11	2.50E-03	2.56E-04	7.116	0.729	0.0602	0.0062	350.6	2.17
C12	2.55E-03	2.62E-04	7.263	0.747	0.0615	0.0063	349.3	2.39
C13	2.58E-03	2.59E-04	7.335	0.737	0.0621	0.0062	345.6	2.98
C14	2.34E-03	2.34E-04	6.650	0.666	0.0563	0.0056	341.8	2.60
C15	2.27E-03	2.27E-04	6.450	0.645	0.0546	0.0055	341.5	2.40
C16	2.47E-03	2.50E-04	7.034	0.713	0.0595	0.0060	346.2	2.36
C17	2.94E-03	2.98E-04	8.367	0.849	0.0708	0.0072	354.8	2.69
C18	3.42E-03	3.45E-04	9.731	0.983	0.0823	0.0083	362.7	3.12
C19	3.57E-03	3.60E-04	10.152	1.026	0.0859	0.0087	368.1	3.34
D02	4.77E-03	4.79E-04	13.580	1.362	0.1149	0.0115	388.6	3.84
D03	3.60E-03	3.60E-04	10.245	1.025	0.0867	0.0087	367.0	3.29
D04	3.52E-03	3.52E-04	10.021	1.003	0.0848	0.0085	366.2	3.16
D13	2.34E-03	2.38E-04	6.661	0.677	0.0564	0.0057	342.4	2.38
D14	2.31E-03	2.32E-04	6.577	0.659	0.0556	0.0056	341.7	2.52
E03	3.76E-03	3.77E-04	10.700	1.072	0.0905	0.0091	369.7	3.36
F20	2.00E-04	2.02E-05	0.571	0.057	0.0048	0.0005	301.1	0.24
F21	1.48E-04	1.49E-05	0.421	0.042	0.0036	0.0004	300.1	0.14
F22	1.62E-04	1.63E-05	0.462	0.046	0.0039	0.0004	300.2	0.26
F23	1.00E-04	1.01E-05	0.285	0.029	0.0024	0.0002	299.0	0.17
F24	8.74E-05	9.17E-06	0.249	0.026	0.0021	0.0002	298.7	0.19
F25	8.09E-05	8.94E-06	0.230	0.025	0.0019	0.0002	298.5	0.08

Table C - 36. Run 3049 data, Mach 8 nozzle, $Re_\infty = 16.0\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)^(1/2)	ΔSt×(ReD)^(1/2)	St×(ReD)^(1/5)	ΔSt×(ReD)^(1/5)	Tw (K)	ΔTw (K)
A03	3.76E-03	3.76E-04	10.638	1.064	0.0903	0.0090	382.7	0.45
B02	3.71E-03	3.71E-04	10.505	1.051	0.0892	0.0089	382.2	0.40
B04	3.65E-03	3.66E-04	10.339	1.035	0.0878	0.0088	378.6	0.48
B13	2.38E-03	2.39E-04	6.740	0.675	0.0572	0.0057	351.7	0.40
B14	2.26E-03	2.27E-04	6.401	0.643	0.0543	0.0055	351.9	0.33
C01	3.57E-03	3.57E-04	10.096	1.010	0.0857	0.0086	382.8	0.41
C02	3.82E-03	3.82E-04	10.804	1.080	0.0917	0.0092	383.5	0.45
C03	3.75E-03	3.75E-04	10.600	1.060	0.0900	0.0090	380.7	0.48
C04	3.69E-03	3.70E-04	10.452	1.046	0.0888	0.0089	379.0	0.50
C05	3.89E-03	3.89E-04	10.993	1.101	0.0933	0.0094	380.0	0.64
C06	3.68E-03	3.70E-04	10.404	1.047	0.0883	0.0089	374.1	0.71
C07	3.52E-03	3.60E-04	9.965	1.018	0.0846	0.0086	368.1	0.84
C08	2.93E-03	3.07E-04	8.289	0.869	0.0704	0.0074	356.6	0.85
C09	2.44E-03	2.50E-04	6.895	0.707	0.0585	0.0060	353.6	0.56
C10	2.45E-03	2.46E-04	6.934	0.696	0.0589	0.0059	356.9	0.41
C11	2.42E-03	2.43E-04	6.840	0.686	0.0581	0.0058	358.5	0.35
C12	2.28E-03	2.28E-04	6.450	0.645	0.0548	0.0055	357.0	0.25
C13	2.61E-03	2.61E-04	7.397	0.740	0.0628	0.0063	355.8	0.38
C14	2.43E-03	2.45E-04	6.875	0.693	0.0584	0.0059	351.2	0.43
C15	2.27E-03	2.28E-04	6.435	0.646	0.0546	0.0055	349.9	0.38
C16	2.24E-03	2.24E-04	6.347	0.635	0.0539	0.0054	353.4	0.28
C17	2.35E-03	2.36E-04	6.661	0.669	0.0566	0.0057	361.4	0.13
C18	2.72E-03	2.76E-04	7.698	0.782	0.0654	0.0066	370.4	0.13
C19	2.89E-03	2.93E-04	8.187	0.831	0.0695	0.0071	376.8	0.00
D02	4.58E-03	4.58E-04	12.971	1.297	0.1101	0.0110	401.7	0.47
D03	3.67E-03	3.67E-04	10.388	1.039	0.0882	0.0088	379.2	0.45
D04	3.68E-03	3.69E-04	10.422	1.043	0.0885	0.0089	378.6	0.54
D13	2.34E-03	2.35E-04	6.631	0.664	0.0563	0.0056	351.0	0.33
D14	2.27E-03	2.27E-04	6.420	0.642	0.0545	0.0055	350.0	0.31
E03	3.77E-03	3.77E-04	10.679	1.068	0.0907	0.0091	382.0	0.45
F20	1.67E-04	1.72E-05	0.472	0.049	0.0040	0.0004	301.8	0.13
F21	1.68E-04	1.69E-05	0.476	0.048	0.0040	0.0004	300.9	0.13
F22	1.56E-04	1.68E-05	0.442	0.048	0.0038	0.0004	300.8	0.00
F23	1.03E-04	1.03E-05	0.291	0.029	0.0025	0.0002	299.5	0.00
F24	9.01E-05	9.09E-06	0.255	0.026	0.0022	0.0002	299.1	0.00
F25	7.97E-05	7.98E-06	0.226	0.023	0.0019	0.0002	298.9	0.09

Table C - 37. Run 3049 data, Mach 8 nozzle, $Re_\infty = 16.0\times10^6$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.82E-03	3.82E-04	10.782	1.078	0.0916	0.0092	387.4	0.42
B02	3.67E-03	3.67E-04	10.383	1.038	0.0882	0.0088	386.3	0.35
B04	3.78E-03	3.78E-04	10.679	1.068	0.0908	0.0091	383.9	0.50
B13	2.47E-03	2.47E-04	6.982	0.698	0.0593	0.0059	355.6	0.27
B14	2.39E-03	2.40E-04	6.763	0.677	0.0575	0.0058	355.7	0.25
C01	3.52E-03	3.52E-04	9.947	0.995	0.0845	0.0085	386.9	0.35
C02	3.81E-03	3.81E-04	10.754	1.076	0.0914	0.0091	388.0	0.38
C03	3.82E-03	3.82E-04	10.796	1.080	0.0917	0.0092	385.8	0.44
C04	3.84E-03	3.84E-04	10.849	1.085	0.0922	0.0092	384.5	0.48
C05	4.13E-03	4.14E-04	11.681	1.169	0.0993	0.0099	386.7	0.57
C06	4.08E-03	4.09E-04	11.528	1.154	0.0980	0.0098	381.8	0.63
C07	4.16E-03	4.17E-04	11.765	1.179	0.1000	0.0100	377.5	0.77
C08	3.87E-03	3.91E-04	10.922	1.105	0.0928	0.0094	367.0	0.94
C09	3.19E-03	3.27E-04	9.006	0.925	0.0765	0.0079	361.5	0.84
C10	2.57E-03	2.57E-04	7.251	0.725	0.0616	0.0062	361.2	0.34
C11	2.60E-03	2.60E-04	7.357	0.736	0.0625	0.0063	362.8	0.35
C12	2.39E-03	2.39E-04	6.758	0.676	0.0574	0.0057	360.3	0.27
C13	2.59E-03	2.59E-04	7.313	0.732	0.0621	0.0062	359.4	0.25
C14	2.74E-03	2.74E-04	7.754	0.776	0.0659	0.0066	356.6	0.40
C15	2.50E-03	2.50E-04	7.053	0.707	0.0599	0.0060	354.3	0.38
C16	2.32E-03	2.32E-04	6.550	0.655	0.0557	0.0056	356.4	0.27
C17	2.29E-03	2.29E-04	6.458	0.646	0.0549	0.0055	362.8	0.13
C18	2.44E-03	2.44E-04	6.887	0.689	0.0585	0.0059	370.8	0.00
C19	2.56E-03	2.57E-04	7.243	0.725	0.0615	0.0062	377.4	0.00
D02	4.46E-03	4.47E-04	12.611	1.262	0.1072	0.0107	406.0	0.30
D03	3.73E-03	3.73E-04	10.538	1.054	0.0896	0.0090	384.2	0.40
D04	3.81E-03	3.81E-04	10.757	1.076	0.0914	0.0091	384.1	0.46
D13	2.41E-03	2.41E-04	6.818	0.682	0.0579	0.0058	354.7	0.28
D14	2.33E-03	2.33E-04	6.581	0.658	0.0559	0.0056	353.5	0.25
E03	3.81E-03	3.81E-04	10.763	1.076	0.0915	0.0091	386.8	0.44
F20	1.38E-04	1.40E-05	0.391	0.039	0.0033	0.0003	301.8	0.09
F21	1.79E-04	1.79E-05	0.506	0.051	0.0043	0.0004	301.2	0.00
F22	2.73E-04	2.88E-05	0.773	0.081	0.0066	0.0007	301.8	0.00
F23	9.84E-05	1.01E-05	0.278	0.028	0.0024	0.0002	299.6	0.13
F24	9.19E-05	9.41E-06	0.260	0.027	0.0022	0.0002	299.3	0.09
F25	6.48E-05	7.09E-06	0.183	0.020	0.0016	0.0002	298.9	0.13

Table C - 38. Run 3034 data, Mach 8 nozzle, $Re_\infty = 16.1\times10^6$/ft, α = 0°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.03E-03	3.04E-04	8.675	0.873	0.0732	0.0074	360.7	1.67
B02	3.37E-03	3.38E-04	9.638	0.968	0.0813	0.0082	366.5	1.89
B03	2.86E-03	2.87E-04	8.169	0.822	0.0689	0.0069	357.8	1.54
B04	2.47E-03	2.50E-04	7.068	0.716	0.0596	0.0060	350.4	1.30
B13	2.36E-03	2.48E-04	6.750	0.715	0.0570	0.0060	344.2	1.38
B14	2.58E-03	2.65E-04	7.373	0.764	0.0622	0.0064	348.7	1.55
C01	3.43E-03	3.46E-04	9.811	0.992	0.0828	0.0084	370.0	1.95
C02	3.36E-03	3.39E-04	9.617	0.973	0.0811	0.0082	366.3	1.85
C03	2.85E-03	2.88E-04	8.148	0.826	0.0687	0.0069	358.3	1.52
C04	2.46E-03	2.50E-04	7.027	0.719	0.0593	0.0061	350.2	1.30
C05	2.15E-03	2.29E-04	6.137	0.661	0.0518	0.0055	344.2	0.99
C06	1.93E-03	2.12E-04	5.516	0.613	0.0465	0.0051	339.2	0.84
C07	1.81E-03	2.06E-04	5.173	0.595	0.0436	0.0050	336.8	0.75
C08	1.79E-03	1.86E-04	5.125	0.537	0.0432	0.0045	336.5	0.92
C09	2.10E-03	2.11E-04	6.005	0.606	0.0507	0.0051	343.3	1.28
C10	2.37E-03	2.40E-04	6.774	0.690	0.0572	0.0058	349.7	1.31
C11	2.47E-03	2.52E-04	7.062	0.723	0.0596	0.0061	349.4	1.49
C12	2.19E-03	2.31E-04	6.257	0.667	0.0528	0.0056	343.0	1.32
C13	2.38E-03	2.50E-04	6.798	0.720	0.0574	0.0060	344.7	1.42
C14	2.53E-03	2.59E-04	7.236	0.745	0.0611	0.0063	347.0	1.59
C15	2.91E-03	2.96E-04	8.315	0.851	0.0702	0.0072	354.4	1.81
C16	3.42E-03	3.47E-04	9.774	0.996	0.0825	0.0084	363.6	2.03
C17	3.91E-03	3.94E-04	11.181	1.131	0.0943	0.0095	372.0	2.34
C18	4.24E-03	4.25E-04	12.113	1.220	0.1022	0.0103	377.4	2.53
C19	4.15E-03	4.17E-04	11.878	1.196	0.1002	0.0101	379.4	2.55
D02	3.46E-03	3.49E-04	9.889	1.003	0.0834	0.0084	367.3	1.88
D03	2.97E-03	3.04E-04	8.504	0.873	0.0718	0.0073	359.5	1.54
D04	2.57E-03	2.68E-04	7.356	0.770	0.0621	0.0065	352.3	1.23
D13	2.43E-03	2.55E-04	6.936	0.734	0.0585	0.0062	344.9	1.47
D14	2.67E-03	2.78E-04	7.636	0.800	0.0644	0.0067	350.3	1.53
E03	3.36E-03	3.41E-04	9.622	0.979	0.0812	0.0082	365.9	1.82
F20	5.38E-05	5.62E-06	0.154	0.016	0.0013	0.0001	297.6	0.21
F21	5.18E-05	5.53E-06	0.148	0.016	0.0013	0.0001	296.4	0.15
F22	9.74E-05	9.79E-06	0.278	0.028	0.0023	0.0002	298.6	0.10
F23	1.59E-04	1.60E-05	0.455	0.046	0.0038	0.0004	299.7	0.10
F24	9.95E-05	1.02E-05	0.285	0.029	0.0024	0.0002	298.4	0.10
F25	1.10E-04	1.11E-05	0.315	0.032	0.0027	0.0003	298.7	0.18

Table C - 39. Run 3034 data, Mach 8 nozzle, $Re_\infty = 16.1\times10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.54E-03	2.54E-04	7.199	0.721	0.0610	0.0061	366.3	0.13
B02	2.83E-03	2.83E-04	8.030	0.804	0.0681	0.0068	373.0	0.00
B03	2.35E-03	2.35E-04	6.666	0.668	0.0565	0.0057	363.0	0.13
B04	2.03E-03	2.03E-04	5.763	0.577	0.0488	0.0049	354.8	0.13
B13	1.80E-03	1.81E-04	5.120	0.513	0.0434	0.0043	347.7	0.00
B14	2.06E-03	2.06E-04	5.839	0.584	0.0495	0.0049	353.0	0.18
C01	2.92E-03	2.93E-04	8.299	0.832	0.0703	0.0071	377.2	0.13
C02	2.72E-03	2.73E-04	7.733	0.776	0.0655	0.0066	372.0	0.13
C03	2.29E-03	2.29E-04	6.498	0.650	0.0551	0.0055	362.6	0.22
C04	1.97E-03	1.97E-04	5.588	0.559	0.0474	0.0047	353.7	0.13
C05	1.75E-03	1.75E-04	4.970	0.498	0.0421	0.0042	347.1	0.13
C06	1.65E-03	1.65E-04	4.671	0.468	0.0396	0.0040	342.4	0.18
C07	1.65E-03	1.66E-04	4.692	0.470	0.0398	0.0040	340.6	0.23
C08	1.83E-03	1.85E-04	5.182	0.524	0.0439	0.0044	342.0	0.31
C09	2.31E-03	2.32E-04	6.561	0.658	0.0556	0.0056	351.4	0.41
C10	2.24E-03	2.25E-04	6.357	0.638	0.0539	0.0054	356.8	0.00
C11	2.07E-03	2.07E-04	5.887	0.589	0.0499	0.0050	354.6	0.18
C12	1.67E-03	1.67E-04	4.750	0.475	0.0403	0.0040	346.4	0.13
C13	1.78E-03	1.78E-04	5.040	0.505	0.0427	0.0043	348.0	0.00
C14	2.15E-03	2.18E-04	6.113	0.618	0.0518	0.0052	352.2	0.28
C15	2.67E-03	2.70E-04	7.582	0.767	0.0643	0.0065	361.3	0.43
C16	3.19E-03	3.20E-04	9.050	0.908	0.0767	0.0077	372.1	0.40
C17	3.69E-03	3.69E-04	10.479	1.048	0.0888	0.0089	382.2	0.41
C18	4.01E-03	4.01E-04	11.375	1.138	0.0964	0.0096	388.6	0.38
C19	3.89E-03	3.89E-04	11.026	1.103	0.0935	0.0094	390.6	0.40
D02	2.90E-03	2.90E-04	8.229	0.824	0.0697	0.0070	373.7	0.13
D03	2.40E-03	2.40E-04	6.809	0.681	0.0577	0.0058	364.0	0.18
D04	2.05E-03	2.05E-04	5.808	0.581	0.0492	0.0049	355.8	0.18
D13	1.85E-03	1.85E-04	5.256	0.526	0.0445	0.0045	348.7	0.13
D14	2.19E-03	2.19E-04	6.217	0.622	0.0527	0.0053	355.2	0.25
E03	2.63E-03	2.63E-04	7.462	0.747	0.0632	0.0063	370.7	0.00
F20	1.07E-04	1.08E-05	0.305	0.031	0.0026	0.0003	298.1	0.09
F21	1.14E-04	1.15E-05	0.324	0.033	0.0027	0.0003	297.0	0.09
F22	7.67E-05	7.93E-06	0.218	0.023	0.0018	0.0002	298.8	0.09
F23	2.62E-04	2.62E-05	0.743	0.074	0.0063	0.0006	301.1	0.00
F24	1.75E-04	1.81E-05	0.498	0.051	0.0042	0.0004	299.3	0.00
F25	2.39E-04	2.43E-05	0.679	0.069	0.0058	0.0006	300.0	0.09

Table C - 40. Run 3034 data, Mach 8 nozzle, $Re_\infty = 16.1\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.50E-03	2.50E-04	7.065	0.706	0.0600	0.0060	368.3	0.19
B02	2.75E-03	2.75E-04	7.774	0.777	0.0661	0.0066	375.0	0.23
B03	2.37E-03	2.37E-04	6.690	0.669	0.0568	0.0057	364.9	0.13
B04	2.07E-03	2.07E-04	5.845	0.585	0.0497	0.0050	356.6	0.25
B13	1.90E-03	1.94E-04	5.370	0.549	0.0456	0.0047	349.6	0.31
B14	2.35E-03	2.41E-04	6.635	0.681	0.0564	0.0058	356.3	0.45
C01	2.80E-03	2.80E-04	7.923	0.792	0.0673	0.0067	379.4	0.13
C02	2.63E-03	2.63E-04	7.427	0.743	0.0631	0.0063	373.5	0.19
C03	2.30E-03	2.30E-04	6.490	0.650	0.0551	0.0055	364.4	0.13
C04	2.09E-03	2.10E-04	5.909	0.593	0.0502	0.0050	356.0	0.27
C05	1.97E-03	1.99E-04	5.577	0.561	0.0474	0.0048	350.0	0.25
C06	1.91E-03	1.94E-04	5.388	0.548	0.0458	0.0047	345.5	0.37
C07	2.02E-03	2.07E-04	5.710	0.585	0.0485	0.0050	344.6	0.46
C08	2.31E-03	2.32E-04	6.523	0.655	0.0554	0.0056	347.4	0.45
C09	2.35E-03	2.35E-04	6.642	0.665	0.0564	0.0057	355.6	0.30
C10	2.23E-03	2.23E-04	6.299	0.630	0.0535	0.0054	359.3	0.19
C11	2.03E-03	2.03E-04	5.740	0.574	0.0488	0.0049	356.7	0.21
C12	1.67E-03	1.68E-04	4.711	0.473	0.0400	0.0040	347.9	0.16
C13	2.53E-03	2.72E-04	7.155	0.767	0.0608	0.0065	353.1	0.74
C14	3.06E-03	3.17E-04	8.638	0.896	0.0734	0.0076	359.4	0.82
C15	3.39E-03	3.43E-04	9.582	0.970	0.0814	0.0082	368.5	0.71
C16	3.59E-03	3.60E-04	10.156	1.019	0.0863	0.0087	378.1	0.55
C17	3.82E-03	3.82E-04	10.808	1.081	0.0918	0.0092	387.3	0.44
C18	3.96E-03	3.96E-04	11.199	1.120	0.0952	0.0095	393.0	0.35
C19	3.76E-03	3.76E-04	10.626	1.063	0.0903	0.0090	394.6	0.35
D02	2.80E-03	2.80E-04	7.920	0.792	0.0673	0.0067	375.8	0.23
D03	2.39E-03	2.39E-04	6.748	0.675	0.0573	0.0057	366.0	0.27
D04	2.17E-03	2.18E-04	6.140	0.616	0.0522	0.0052	358.1	0.28
D13	1.94E-03	1.95E-04	5.471	0.551	0.0465	0.0047	350.6	0.23
D14	2.42E-03	2.44E-04	6.829	0.690	0.0580	0.0059	358.5	0.37
E03	2.62E-03	2.62E-04	7.411	0.741	0.0630	0.0063	372.5	0.19
F20	6.94E-05	7.32E-06	0.196	0.021	0.0017	0.0002	298.2	0.09
F21	7.97E-05	8.25E-06	0.225	0.023	0.0019	0.0002	297.2	0.09
F22	1.17E-04	1.19E-05	0.331	0.034	0.0028	0.0003	299.1	0.00
F23	2.00E-04	2.11E-05	0.566	0.060	0.0048	0.0005	301.5	0.13
F24	1.60E-04	1.65E-05	0.453	0.047	0.0039	0.0004	299.8	0.09
F25	2.15E-04	2.19E-05	0.607	0.062	0.0052	0.0005	300.7	0.13

Table C - 41. Run 3034 data, Mach 8 nozzle, $Re_{\infty} = 16.1\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	$St\times(ReD)^{(1/2)}$	$\Delta St\times(ReD)^{(1/2)}$	$St\times(ReD)^{(1/5)}$	$\Delta St\times(ReD)^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.53E-03	2.53E-04	7.159	0.716	0.0608	0.0061	371.0	0.40
B02	2.73E-03	2.73E-04	7.729	0.773	0.0657	0.0066	377.5	0.41
B03	2.42E-03	2.42E-04	6.852	0.685	0.0582	0.0058	367.7	0.27
B04	2.24E-03	2.25E-04	6.335	0.634	0.0538	0.0054	359.9	0.42
B13	2.84E-03	3.03E-04	8.034	0.854	0.0683	0.0073	357.4	1.20
B14	3.47E-03	3.70E-04	9.805	1.042	0.0833	0.0089	366.1	1.47
C01	2.84E-03	2.84E-04	8.018	0.802	0.0681	0.0068	382.5	0.37
C02	2.69E-03	2.69E-04	7.598	0.760	0.0646	0.0065	376.3	0.38
C03	2.44E-03	2.44E-04	6.894	0.689	0.0586	0.0059	367.7	0.37
C04	2.31E-03	2.31E-04	6.524	0.653	0.0554	0.0055	359.9	0.48
C05	2.28E-03	2.29E-04	6.439	0.646	0.0547	0.0055	354.7	0.58
C06	2.38E-03	2.40E-04	6.722	0.678	0.0571	0.0058	351.6	0.78
C07	2.51E-03	2.55E-04	7.100	0.720	0.0603	0.0061	351.4	0.84
C08	2.36E-03	2.36E-04	6.667	0.667	0.0567	0.0057	352.5	0.57
C09	2.31E-03	2.32E-04	6.522	0.655	0.0554	0.0056	359.0	0.49
C10	2.24E-03	2.24E-04	6.338	0.634	0.0539	0.0054	362.3	0.40
C11	2.09E-03	2.10E-04	5.908	0.592	0.0502	0.0050	359.3	0.42
C12	2.58E-03	2.93E-04	7.287	0.826	0.0619	0.0070	354.8	1.29
C13	3.64E-03	3.75E-04	10.275	1.058	0.0873	0.0090	364.8	1.45
C14	3.77E-03	3.81E-04	10.641	1.076	0.0904	0.0091	370.1	1.24
C15	3.81E-03	3.83E-04	10.755	1.080	0.0914	0.0092	377.3	1.01
C16	3.81E-03	3.81E-04	10.757	1.077	0.0914	0.0092	385.0	0.78
C17	3.90E-03	3.90E-04	11.022	1.103	0.0937	0.0094	392.7	0.68
C18	3.93E-03	3.93E-04	11.116	1.112	0.0945	0.0094	397.5	0.58
C19	3.66E-03	3.66E-04	10.341	1.034	0.0879	0.0088	398.5	0.47
D02	2.86E-03	2.87E-04	8.096	0.810	0.0688	0.0069	378.7	0.46
D03	2.51E-03	2.52E-04	7.103	0.711	0.0604	0.0060	369.1	0.38
D04	2.36E-03	2.36E-04	6.676	0.668	0.0567	0.0057	362.0	0.41
D13	2.53E-03	2.65E-04	7.140	0.747	0.0607	0.0064	356.3	0.90
D14	3.15E-03	3.31E-04	8.894	0.933	0.0756	0.0079	365.9	1.14
E03	2.72E-03	2.72E-04	7.689	0.769	0.0653	0.0065	375.7	0.41
F20	7.80E-05	7.82E-06	0.220	0.022	0.0019	0.0002	298.4	0.14
F21	8.55E-05	8.56E-06	0.242	0.024	0.0021	0.0002	297.3	0.14
F22	1.38E-04	1.44E-05	0.390	0.041	0.0033	0.0003	299.5	0.10
F23	1.70E-04	1.81E-05	0.482	0.051	0.0041	0.0004	301.5	0.10
F24	1.53E-04	1.55E-05	0.431	0.044	0.0037	0.0004	300.0	0.10
F25	1.67E-04	1.75E-05	0.472	0.049	0.0040	0.0004	300.8	0.10

Table C - 42. Run 3038 data, Mach 8 nozzle, $Re_\infty = 16.2\times10^6$/ft, α = 0°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.72E-03	3.75E-04	10.661	1.074	0.0899	0.0090	373.9	2.25
B02	3.88E-03	3.90E-04	11.102	1.116	0.0936	0.0094	376.6	2.35
B03	3.70E-03	3.70E-04	10.586	1.061	0.0893	0.0089	372.5	2.41
B04	3.22E-03	3.25E-04	9.222	0.930	0.0778	0.0078	365.3	1.94
B13	2.03E-03	2.10E-04	5.814	0.603	0.0490	0.0051	345.1	1.04
B14	2.26E-03	2.32E-04	6.480	0.665	0.0546	0.0056	350.6	1.17
C01	3.77E-03	3.78E-04	10.788	1.083	0.0910	0.0091	377.4	2.43
C02	3.86E-03	3.87E-04	11.065	1.110	0.0933	0.0094	376.4	2.40
C03	3.53E-03	3.55E-04	10.120	1.017	0.0853	0.0086	370.6	2.18
C04	3.19E-03	3.22E-04	9.137	0.922	0.0770	0.0078	365.0	1.92
C05	2.68E-03	2.71E-04	7.681	0.776	0.0648	0.0065	355.6	1.64
C06	2.35E-03	2.46E-04	6.739	0.704	0.0568	0.0059	348.8	1.50
C07	2.18E-03	2.18E-04	6.233	0.624	0.0526	0.0053	344.9	1.54
C08	2.22E-03	2.25E-04	6.366	0.646	0.0537	0.0054	346.1	1.46
C09	2.56E-03	2.58E-04	7.339	0.738	0.0619	0.0062	354.6	1.74
C10	2.61E-03	2.62E-04	7.484	0.750	0.0631	0.0063	355.9	1.81
C11	2.21E-03	2.21E-04	6.336	0.634	0.0534	0.0053	348.2	1.56
C12	1.87E-03	1.88E-04	5.358	0.537	0.0452	0.0045	342.4	1.24
C13	1.96E-03	2.02E-04	5.607	0.579	0.0473	0.0049	343.4	1.07
C14	2.11E-03	2.16E-04	6.054	0.621	0.0510	0.0052	346.6	1.18
C15	2.39E-03	2.41E-04	6.838	0.692	0.0577	0.0058	352.1	1.38
C16	2.70E-03	2.72E-04	7.735	0.779	0.0652	0.0066	358.1	1.61
C17	3.07E-03	3.08E-04	8.791	0.884	0.0741	0.0074	364.5	1.84
C18	3.46E-03	3.47E-04	9.918	0.993	0.0836	0.0084	370.9	2.13
C19	3.48E-03	3.49E-04	9.974	0.999	0.0841	0.0084	373.9	2.26
D02	3.87E-03	3.87E-04	11.077	1.110	0.0934	0.0094	375.9	2.43
D03	3.57E-03	3.58E-04	10.226	1.026	0.0862	0.0086	371.0	2.24
D04	3.23E-03	3.24E-04	9.253	0.929	0.0780	0.0078	365.3	2.01
D13	2.01E-03	2.05E-04	5.746	0.587	0.0484	0.0049	344.5	1.15
D14	2.21E-03	2.23E-04	6.315	0.641	0.0532	0.0054	348.4	1.27
E03	3.77E-03	3.77E-04	10.781	1.081	0.0909	0.0091	374.6	2.35
F20	9.02E-05	1.00E-05	0.258	0.029	0.0022	0.0002	299.4	0.15
F21	8.41E-05	9.37E-06	0.241	0.027	0.0020	0.0002	299.2	0.18
F22	1.64E-04	1.75E-05	0.470	0.050	0.0040	0.0004	301.1	0.10
F23	1.57E-04	1.59E-05	0.449	0.046	0.0038	0.0004	301.0	0.15
F24	7.85E-05	9.33E-06	0.225	0.027	0.0019	0.0002	299.3	0.10
F25	8.42E-05	9.30E-06	0.241	0.027	0.0020	0.0002	299.5	0.15

Table C - 43. Run 3038 data, Mach 8 nozzle, $Re_\infty = 16.2\times10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.61E-03	3.61E-04	10.280	1.028	0.0870	0.0087	383.8	0.41
B02	3.80E-03	3.80E-04	10.801	1.080	0.0914	0.0091	387.1	0.43
B03	3.55E-03	3.55E-04	10.091	1.009	0.0854	0.0085	382.5	0.41
B04	3.23E-03	3.23E-04	9.196	0.920	0.0778	0.0078	374.6	0.43
B13	1.85E-03	1.85E-04	5.255	0.525	0.0445	0.0044	349.4	0.18
B14	1.87E-03	1.87E-04	5.326	0.533	0.0451	0.0045	354.1	0.13
C01	3.66E-03	3.66E-04	10.408	1.041	0.0881	0.0088	388.0	0.45
C02	3.82E-03	3.82E-04	10.869	1.087	0.0920	0.0092	387.1	0.43
C03	3.52E-03	3.52E-04	10.016	1.002	0.0848	0.0085	380.6	0.47
C04	3.21E-03	3.22E-04	9.145	0.916	0.0774	0.0077	374.2	0.45
C05	2.73E-03	2.74E-04	7.760	0.778	0.0657	0.0066	363.7	0.41
C06	2.41E-03	3.77E-04	6.849	1.072	0.0580	0.0091	354.9	1.21
C07	1.92E-03	1.92E-04	5.469	0.548	0.0463	0.0046	350.3	0.18
C08	1.82E-03	1.83E-04	5.181	0.522	0.0438	0.0044	350.4	0.00
C09	2.12E-03	2.13E-04	6.030	0.605	0.0510	0.0051	359.8	0.13
C10	2.35E-03	2.37E-04	6.701	0.675	0.0567	0.0057	362.8	0.13
C11	2.41E-03	2.41E-04	6.855	0.687	0.0580	0.0058	356.5	0.47
C12	1.89E-03	1.91E-04	5.380	0.542	0.0455	0.0046	348.3	0.35
C13	1.79E-03	1.80E-04	5.107	0.511	0.0432	0.0043	347.8	0.25
C14	1.81E-03	1.81E-04	5.145	0.515	0.0435	0.0044	350.4	0.28
C15	1.92E-03	1.92E-04	5.467	0.548	0.0463	0.0046	355.6	0.18
C16	2.18E-03	2.19E-04	6.192	0.624	0.0524	0.0053	362.3	0.00
C17	2.45E-03	2.48E-04	6.980	0.706	0.0591	0.0060	369.5	0.13
C18	2.94E-03	2.97E-04	8.365	0.844	0.0708	0.0071	377.8	0.18
C19	3.07E-03	3.09E-04	8.746	0.880	0.0740	0.0074	381.9	0.18
D02	3.82E-03	3.82E-04	10.857	1.086	0.0919	0.0092	386.7	0.50
D03	3.55E-03	3.56E-04	10.113	1.012	0.0856	0.0086	381.1	0.41
D04	3.27E-03	3.27E-04	9.305	0.931	0.0787	0.0079	374.9	0.45
D13	1.80E-03	1.80E-04	5.124	0.512	0.0434	0.0043	348.6	0.13
D14	1.83E-03	1.83E-04	5.205	0.521	0.0440	0.0044	352.1	0.00
E03	3.73E-03	3.73E-04	10.625	1.063	0.0899	0.0090	385.2	0.40
F20	2.25E-04	2.27E-05	0.642	0.065	0.0054	0.0005	300.8	0.13
F21	1.70E-04	1.72E-05	0.485	0.049	0.0041	0.0004	300.3	0.09
F22	2.71E-04	2.73E-05	0.770	0.078	0.0065	0.0007	302.7	0.13
F23	1.64E-04	1.65E-05	0.466	0.047	0.0039	0.0004	301.6	0.09
F24	9.11E-05	9.20E-06	0.259	0.026	0.0022	0.0002	299.6	0.09
F25	8.94E-05	9.01E-06	0.255	0.026	0.0022	0.0002	299.8	0.13

Table C - 44. Run 3038 data, Mach 8 nozzle, $Re_{\infty} = 16.2\times10^{6}$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.67E-03	3.67E-04	10.416	1.042	0.0883	0.0088	388.6	0.44
B02	3.76E-03	3.76E-04	10.686	1.069	0.0905	0.0091	391.7	0.40
B03	3.59E-03	3.59E-04	10.202	1.020	0.0864	0.0086	387.1	0.38
B04	3.42E-03	3.43E-04	9.726	0.973	0.0824	0.0082	379.9	0.48
B13	2.02E-03	2.03E-04	5.744	0.578	0.0487	0.0049	352.5	0.34
B14	1.95E-03	1.97E-04	5.545	0.558	0.0470	0.0047	356.0	0.23
C01	3.54E-03	3.55E-04	10.061	1.007	0.0852	0.0085	392.3	0.23
C02	3.77E-03	3.77E-04	10.713	1.072	0.0908	0.0091	391.7	0.35
C03	3.57E-03	3.57E-04	10.141	1.014	0.0859	0.0086	385.5	0.38
C04	3.47E-03	3.47E-04	9.840	0.985	0.0834	0.0083	379.9	0.50
C05	3.19E-03	3.22E-04	9.057	0.913	0.0767	0.0077	370.0	0.64
C06	5.56E-03	5.60E-04	15.783	1.590	0.1337	0.0135	378.1	1.35
C07	2.33E-03	2.45E-04	6.612	0.696	0.0560	0.0059	354.3	0.61
C08	1.90E-03	1.94E-04	5.391	0.551	0.0457	0.0047	352.3	0.34
C09	2.05E-03	2.05E-04	5.812	0.581	0.0492	0.0049	361.4	0.21
C10	2.15E-03	2.15E-04	6.097	0.610	0.0517	0.0052	364.3	0.13
C11	2.35E-03	2.36E-04	6.687	0.670	0.0567	0.0057	360.4	0.23
C12	2.30E-03	2.31E-04	6.541	0.657	0.0554	0.0056	353.6	0.47
C13	2.11E-03	2.14E-04	5.978	0.608	0.0507	0.0052	351.5	0.42
C14	1.97E-03	1.99E-04	5.602	0.565	0.0475	0.0048	353.0	0.31
C15	1.95E-03	1.96E-04	5.543	0.556	0.0470	0.0047	357.3	0.21
C16	2.04E-03	2.04E-04	5.801	0.580	0.0491	0.0049	363.1	0.19
C17	2.26E-03	2.26E-04	6.419	0.642	0.0544	0.0054	370.1	0.13
C18	2.62E-03	2.62E-04	7.441	0.745	0.0630	0.0063	378.6	0.00
C19	2.76E-03	2.76E-04	7.825	0.784	0.0663	0.0066	383.5	0.13
D02	3.77E-03	3.77E-04	10.703	1.071	0.0907	0.0091	391.4	0.35
D03	3.60E-03	3.60E-04	10.217	1.022	0.0866	0.0087	386.1	0.40
D04	3.42E-03	3.42E-04	9.706	0.971	0.0822	0.0082	380.1	0.48
D13	1.92E-03	1.92E-04	5.447	0.546	0.0462	0.0046	351.3	0.27
D14	1.91E-03	1.91E-04	5.425	0.544	0.0460	0.0046	354.2	0.25
E03	3.73E-03	3.73E-04	10.593	1.059	0.0898	0.0090	389.9	0.35
F20	2.02E-04	2.03E-05	0.573	0.058	0.0049	0.0005	301.4	0.00
F21	1.57E-04	1.59E-05	0.445	0.045	0.0038	0.0004	300.7	0.09
F22	2.02E-04	2.07E-05	0.574	0.059	0.0049	0.0005	302.9	0.09
F23	1.62E-04	1.63E-05	0.460	0.046	0.0039	0.0004	301.9	0.13
F24	7.99E-05	8.10E-06	0.227	0.023	0.0019	0.0002	299.8	0.00
F25	8.33E-05	8.48E-06	0.237	0.024	0.0020	0.0002	299.9	0.09

Table C - 45. Run 3038 data, Mach 8 nozzle, $Re_\infty = 16.2\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.64E-03	3.64E-04	10.302	1.030	0.0875	0.0087	393.8	0.56
B02	3.68E-03	3.68E-04	10.401	1.040	0.0883	0.0088	396.4	0.53
B03	3.58E-03	3.58E-04	10.140	1.014	0.0861	0.0086	392.4	0.57
B04	3.53E-03	3.53E-04	9.983	0.998	0.0848	0.0085	386.3	0.70
B13	2.16E-03	2.17E-04	6.126	0.613	0.0520	0.0052	357.0	0.49
B14	2.23E-03	2.23E-04	6.302	0.630	0.0535	0.0054	360.6	0.51
C01	3.41E-03	3.41E-04	9.658	0.966	0.0820	0.0082	396.5	0.49
C02	3.69E-03	3.69E-04	10.442	1.044	0.0886	0.0089	396.5	0.52
C03	3.57E-03	3.57E-04	10.095	1.010	0.0857	0.0086	390.9	0.57
C04	3.60E-03	3.60E-04	10.177	1.018	0.0864	0.0086	386.7	0.71
C05	3.48E-03	3.49E-04	9.860	0.986	0.0837	0.0084	378.3	0.84
C06	4.10E-03	4.37E-04	11.609	1.236	0.0986	0.0105	384.4	1.19
C07	3.38E-03	3.47E-04	9.554	0.980	0.0811	0.0083	365.6	1.36
C08	2.94E-03	3.19E-04	8.309	0.902	0.0705	0.0077	361.3	1.39
C09	2.20E-03	2.23E-04	6.227	0.630	0.0529	0.0053	364.8	0.54
C10	2.16E-03	2.16E-04	6.102	0.610	0.0518	0.0052	366.8	0.34
C11	2.25E-03	2.25E-04	6.358	0.636	0.0540	0.0054	363.6	0.31
C12	2.15E-03	2.15E-04	6.073	0.609	0.0516	0.0052	358.0	0.31
C13	2.35E-03	2.35E-04	6.644	0.665	0.0564	0.0056	357.5	0.51
C14	2.31E-03	2.32E-04	6.532	0.656	0.0555	0.0056	358.4	0.64
C15	2.26E-03	2.27E-04	6.403	0.644	0.0544	0.0055	361.6	0.56
C16	2.22E-03	2.22E-04	6.272	0.628	0.0533	0.0053	366.2	0.35
C17	2.30E-03	2.30E-04	6.508	0.651	0.0552	0.0055	372.3	0.25
C18	2.54E-03	2.54E-04	7.200	0.720	0.0611	0.0061	380.4	0.23
C19	2.63E-03	2.63E-04	7.443	0.745	0.0632	0.0063	385.5	0.23
D02	3.67E-03	3.67E-04	10.392	1.040	0.0882	0.0088	396.1	0.52
D03	3.60E-03	3.60E-04	10.189	1.019	0.0865	0.0087	391.5	0.56
D04	3.57E-03	3.57E-04	10.091	1.009	0.0857	0.0086	386.6	0.70
D13	2.07E-03	2.08E-04	5.871	0.587	0.0498	0.0050	355.5	0.42
D14	2.07E-03	2.07E-04	5.854	0.586	0.0497	0.0050	357.9	0.42
E03	3.70E-03	3.70E-04	10.467	1.047	0.0889	0.0089	395.1	0.55
F20	1.81E-04	1.85E-05	0.511	0.052	0.0043	0.0004	301.8	0.10
F21	1.50E-04	1.51E-05	0.424	0.043	0.0036	0.0004	301.1	0.10
F22	1.86E-04	1.93E-05	0.527	0.055	0.0045	0.0005	303.1	0.14
F23	1.54E-04	1.54E-05	0.436	0.044	0.0037	0.0004	302.2	0.10
F24	7.19E-05	7.25E-06	0.204	0.021	0.0017	0.0002	299.9	0.00
F25	6.48E-05	6.48E-06	0.183	0.018	0.0016	0.0002	299.9	0.14

Table C - 46. Run 3031 data, Mach 8 nozzle, $Re_\infty = 16.3\times10^6$/ft, $\alpha = 0°$.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.69E-03	3.70E-04	10.622	1.063	0.0893	0.0089	370.6	2.92
B02	3.84E-03	3.85E-04	11.049	1.106	0.0929	0.0093	373.6	3.02
B03	3.55E-03	3.55E-04	10.215	1.022	0.0859	0.0086	368.0	2.87
B04	3.24E-03	3.24E-04	9.312	0.931	0.0783	0.0078	362.2	2.68
B13	2.23E-03	2.36E-04	6.425	0.679	0.0540	0.0057	347.0	1.37
B14	2.40E-03	2.50E-04	6.913	0.721	0.0581	0.0061	350.8	1.48
C01	3.67E-03	3.68E-04	10.560	1.057	0.0888	0.0089	373.7	2.95
C02	3.80E-03	3.80E-04	10.911	1.091	0.0918	0.0092	372.9	2.97
C03	3.50E-03	3.50E-04	10.059	1.006	0.0846	0.0085	368.0	2.79
C04	3.15E-03	3.15E-04	9.059	0.907	0.0762	0.0076	361.1	2.61
C05	2.73E-03	2.73E-04	7.835	0.785	0.0659	0.0066	353.6	2.33
C06	2.38E-03	2.38E-04	6.830	0.684	0.0574	0.0057	347.3	2.04
C07	2.22E-03	2.22E-04	6.368	0.637	0.0536	0.0054	344.1	1.89
C08	2.25E-03	2.25E-04	6.455	0.646	0.0543	0.0054	344.4	1.94
C09	2.58E-03	2.59E-04	7.430	0.744	0.0625	0.0063	351.9	2.29
C10	2.57E-03	2.61E-04	7.401	0.750	0.0622	0.0063	355.0	1.88
C11	2.28E-03	2.29E-04	6.541	0.659	0.0550	0.0055	349.9	1.64
C12	1.94E-03	1.98E-04	5.581	0.570	0.0469	0.0048	343.5	1.32
C13	2.10E-03	2.18E-04	6.036	0.627	0.0508	0.0053	345.2	1.30
C14	2.25E-03	2.35E-04	6.455	0.676	0.0543	0.0057	348.2	1.36
C15	2.46E-03	2.54E-04	7.062	0.733	0.0594	0.0062	353.0	1.41
C16	2.74E-03	2.83E-04	7.876	0.816	0.0662	0.0069	359.3	1.54
C17	3.09E-03	3.19E-04	8.875	0.918	0.0746	0.0077	365.0	1.80
C18	3.45E-03	3.51E-04	9.920	1.010	0.0834	0.0085	370.7	2.18
C19	3.47E-03	3.52E-04	9.980	1.014	0.0839	0.0085	373.5	2.35
D02	3.78E-03	3.79E-04	10.880	1.088	0.0915	0.0092	372.5	3.01
D03	3.50E-03	3.50E-04	10.069	1.007	0.0847	0.0085	367.4	2.84
D04	3.22E-03	3.22E-04	9.263	0.927	0.0779	0.0078	362.7	2.61
D13	2.10E-03	2.16E-04	6.045	0.623	0.0508	0.0052	345.4	1.33
D14	2.27E-03	2.34E-04	6.512	0.674	0.0548	0.0057	349.6	1.33
E03	3.70E-03	3.71E-04	10.647	1.066	0.0895	0.0090	371.5	2.85
F20	7.45E-05	8.77E-06	0.214	0.025	0.0018	0.0002	297.6	0.13
F21	7.16E-05	7.68E-06	0.206	0.022	0.0017	0.0002	296.6	0.09
F22	1.12E-04	1.14E-05	0.321	0.033	0.0027	0.0003	298.5	0.09
F23	1.14E-04	1.18E-05	0.328	0.034	0.0028	0.0003	298.6	0.00
F24	6.78E-05	8.40E-06	0.195	0.024	0.0016	0.0002	297.5	0.09
F25	7.28E-05	7.64E-06	0.209	0.022	0.0018	0.0002	297.7	0.09

Table C - 47. Run 3031 data, Mach 8 nozzle, $Re_\infty = 16.3\times10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.76E-03	3.76E-04	10.748	1.075	0.0907	0.0091	382.6	0.47
B02	3.88E-03	3.88E-04	11.071	1.107	0.0935	0.0093	385.7	0.47
B03	3.65E-03	3.65E-04	10.428	1.043	0.0881	0.0088	379.9	0.47
B04	3.40E-03	3.40E-04	9.716	0.972	0.0820	0.0082	373.8	0.48
B13	1.93E-03	1.93E-04	5.518	0.552	0.0466	0.0047	351.3	0.00
B14	1.98E-03	1.98E-04	5.655	0.566	0.0477	0.0048	354.9	0.18
C01	3.65E-03	3.65E-04	10.421	1.042	0.0880	0.0088	385.5	0.45
C02	3.85E-03	3.85E-04	11.008	1.101	0.0929	0.0093	385.0	0.50
C03	3.62E-03	3.62E-04	10.338	1.034	0.0873	0.0087	379.8	0.45
C04	3.36E-03	3.36E-04	9.589	0.960	0.0810	0.0081	372.6	0.52
C05	2.97E-03	2.97E-04	8.470	0.848	0.0715	0.0072	364.2	0.48
C06	2.51E-03	2.51E-04	7.158	0.717	0.0604	0.0061	356.1	0.40
C07	2.13E-03	2.13E-04	6.095	0.610	0.0515	0.0051	351.2	0.31
C08	1.95E-03	1.95E-04	5.558	0.558	0.0469	0.0047	350.2	0.18
C09	2.24E-03	2.24E-04	6.394	0.640	0.0540	0.0054	358.8	0.18
C10	2.45E-03	2.48E-04	7.005	0.708	0.0591	0.0060	362.8	0.13
C11	2.41E-03	2.42E-04	6.887	0.690	0.0582	0.0058	357.7	0.43
C12	1.90E-03	1.91E-04	5.416	0.546	0.0457	0.0046	349.1	0.31
C13	1.87E-03	1.87E-04	5.338	0.534	0.0451	0.0045	349.5	0.18
C14	1.90E-03	1.90E-04	5.430	0.543	0.0458	0.0046	352.1	0.13
C15	2.03E-03	2.03E-04	5.796	0.580	0.0489	0.0049	357.0	0.22
C16	2.23E-03	2.24E-04	6.376	0.640	0.0538	0.0054	363.5	0.13
C17	2.60E-03	2.61E-04	7.422	0.745	0.0627	0.0063	370.5	0.13
C18	3.05E-03	3.06E-04	8.714	0.875	0.0736	0.0074	378.1	0.18
C19	3.16E-03	3.17E-04	9.028	0.905	0.0762	0.0076	382.1	0.25
D02	3.81E-03	3.81E-04	10.874	1.087	0.0918	0.0092	384.4	0.48
D03	3.59E-03	3.59E-04	10.259	1.026	0.0866	0.0087	379.1	0.43
D04	3.39E-03	3.39E-04	9.690	0.969	0.0818	0.0082	374.2	0.48
D13	1.83E-03	1.83E-04	5.217	0.522	0.0440	0.0044	349.5	0.13
D14	1.92E-03	1.92E-04	5.481	0.548	0.0463	0.0046	353.5	0.00
E03	3.75E-03	3.75E-04	10.716	1.072	0.0905	0.0090	383.3	0.52
F20	2.25E-04	2.30E-05	0.641	0.066	0.0054	0.0006	299.0	0.00
F21	1.65E-04	1.69E-05	0.470	0.048	0.0040	0.0004	297.6	0.00
F22	2.57E-04	2.58E-05	0.735	0.074	0.0062	0.0006	300.1	0.09
F23	1.05E-04	1.09E-05	0.301	0.031	0.0025	0.0003	298.9	0.00
F24	1.04E-04	1.06E-05	0.296	0.030	0.0025	0.0003	298.0	0.13
F25	9.36E-05	9.38E-06	0.267	0.027	0.0023	0.0002	298.1	0.09

Table C - 48. Run 3031 data, Mach 8 nozzle, $Re_\infty = 16.3\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.71E-03	3.71E-04	10.579	1.058	0.0894	0.0089	387.3	0.38
B02	3.79E-03	3.80E-04	10.816	1.082	0.0914	0.0091	390.3	0.30
B03	3.65E-03	3.65E-04	10.402	1.040	0.0879	0.0088	384.8	0.38
B04	3.50E-03	3.50E-04	9.984	0.998	0.0844	0.0084	379.1	0.42
B13	2.04E-03	2.05E-04	5.828	0.584	0.0493	0.0049	353.9	0.27
B14	2.03E-03	2.03E-04	5.786	0.579	0.0489	0.0049	356.8	0.23
C01	3.57E-03	3.57E-04	10.171	1.018	0.0860	0.0086	389.9	0.33
C02	3.82E-03	3.82E-04	10.878	1.088	0.0919	0.0092	389.8	0.35
C03	3.65E-03	3.65E-04	10.396	1.040	0.0879	0.0088	384.9	0.42
C04	3.49E-03	3.49E-04	9.955	0.996	0.0841	0.0084	378.2	0.44
C05	3.24E-03	3.25E-04	9.243	0.927	0.0781	0.0078	370.1	0.53
C06	2.93E-03	2.98E-04	8.360	0.850	0.0707	0.0072	362.0	0.62
C07	2.56E-03	2.65E-04	7.291	0.756	0.0616	0.0064	355.9	0.63
C08	2.12E-03	2.19E-04	6.033	0.625	0.0510	0.0053	352.9	0.42
C09	2.41E-03	2.41E-04	6.865	0.688	0.0580	0.0058	362.2	0.35
C10	2.18E-03	2.18E-04	6.202	0.621	0.0524	0.0052	364.1	0.13
C11	2.37E-03	2.38E-04	6.751	0.677	0.0571	0.0057	361.4	0.19
C12	2.29E-03	2.30E-04	6.540	0.656	0.0553	0.0055	354.1	0.42
C13	2.13E-03	2.17E-04	6.087	0.619	0.0514	0.0052	352.9	0.42
C14	2.10E-03	2.12E-04	5.981	0.605	0.0506	0.0051	354.9	0.31
C15	2.16E-03	2.17E-04	6.163	0.619	0.0521	0.0052	359.3	0.30
C16	2.23E-03	2.23E-04	6.363	0.637	0.0538	0.0054	365.0	0.23
C17	2.45E-03	2.45E-04	6.982	0.698	0.0590	0.0059	371.8	0.13
C18	2.78E-03	2.78E-04	7.913	0.793	0.0669	0.0067	379.5	0.00
C19	2.90E-03	2.90E-04	8.256	0.828	0.0698	0.0070	384.2	0.13
D02	3.78E-03	3.79E-04	10.790	1.079	0.0912	0.0091	389.2	0.40
D03	3.63E-03	3.63E-04	10.361	1.036	0.0876	0.0088	384.1	0.42
D04	3.53E-03	3.53E-04	10.059	1.006	0.0850	0.0085	379.6	0.44
D13	1.98E-03	1.99E-04	5.649	0.567	0.0477	0.0048	352.1	0.34
D14	2.10E-03	2.11E-04	5.992	0.602	0.0506	0.0051	356.2	0.30
E03	3.73E-03	3.73E-04	10.643	1.065	0.0900	0.0090	388.1	0.35
F20	2.01E-04	2.05E-05	0.573	0.058	0.0048	0.0005	299.7	0.09
F21	1.49E-04	1.51E-05	0.424	0.043	0.0036	0.0004	298.0	0.00
F22	1.72E-04	1.86E-05	0.491	0.053	0.0042	0.0004	300.3	0.00
F23	1.29E-04	1.30E-05	0.369	0.037	0.0031	0.0003	299.2	0.09
F24	6.40E-05	6.54E-06	0.183	0.019	0.0015	0.0002	298.0	0.13
F25	6.06E-05	6.29E-06	0.173	0.018	0.0015	0.0002	298.1	0.13

Table C - 49. Run 3031 data, Mach 8 nozzle, $Re_\infty = 16.3 \times 10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.66E-03	3.66E-04	10.425	1.043	0.0882	0.0088	392.3	0.55
B02	3.70E-03	3.70E-04	10.524	1.053	0.0890	0.0089	394.9	0.52
B03	3.62E-03	3.62E-04	10.294	1.029	0.0871	0.0087	390.0	0.62
B04	3.55E-03	3.55E-04	10.117	1.012	0.0856	0.0086	385.1	0.69
B13	2.15E-03	2.16E-04	6.134	0.615	0.0519	0.0052	357.7	0.48
B14	2.21E-03	2.22E-04	6.289	0.633	0.0532	0.0054	360.4	0.48
C01	3.42E-03	3.42E-04	9.740	0.974	0.0824	0.0082	394.2	0.42
C02	3.72E-03	3.72E-04	10.589	1.059	0.0896	0.0090	394.6	0.54
C03	3.61E-03	3.61E-04	10.268	1.027	0.0869	0.0087	390.2	0.59
C04	3.56E-03	3.56E-04	10.131	1.013	0.0857	0.0086	384.4	0.63
C05	3.51E-03	3.52E-04	10.008	1.002	0.0847	0.0085	377.8	0.83
C06	3.51E-03	3.52E-04	9.987	1.002	0.0845	0.0085	371.7	1.06
C07	3.48E-03	3.53E-04	9.899	1.005	0.0837	0.0085	367.0	1.32
C08	3.27E-03	3.43E-04	9.297	0.979	0.0787	0.0083	363.5	1.48
C09	2.58E-03	2.59E-04	7.337	0.738	0.0621	0.0062	367.1	0.63
C10	2.17E-03	2.17E-04	6.166	0.617	0.0522	0.0052	366.4	0.29
C11	2.25E-03	2.26E-04	6.417	0.642	0.0543	0.0054	364.3	0.39
C12	2.27E-03	2.27E-04	6.473	0.647	0.0548	0.0055	358.9	0.51
C13	2.48E-03	2.48E-04	7.049	0.705	0.0596	0.0060	359.2	0.59
C14	2.51E-03	2.51E-04	7.140	0.715	0.0604	0.0060	360.9	0.67
C15	2.34E-03	2.35E-04	6.671	0.668	0.0564	0.0057	363.5	0.49
C16	2.26E-03	2.26E-04	6.432	0.643	0.0544	0.0054	367.7	0.24
C17	2.38E-03	2.38E-04	6.772	0.678	0.0573	0.0057	373.8	0.22
C18	2.58E-03	2.58E-04	7.348	0.736	0.0622	0.0062	380.9	0.22
C19	2.67E-03	2.67E-04	7.601	0.761	0.0643	0.0064	385.9	0.17
D02	3.68E-03	3.68E-04	10.481	1.048	0.0887	0.0089	393.9	0.57
D03	3.60E-03	3.60E-04	10.263	1.026	0.0868	0.0087	389.4	0.59
D04	3.61E-03	3.61E-04	10.268	1.027	0.0869	0.0087	385.8	0.72
D13	2.14E-03	2.14E-04	6.095	0.610	0.0516	0.0052	356.4	0.42
D14	2.24E-03	2.24E-04	6.364	0.636	0.0538	0.0054	360.3	0.42
E03	3.66E-03	3.66E-04	10.432	1.043	0.0883	0.0088	392.9	0.54
F20	1.65E-04	1.71E-05	0.471	0.049	0.0040	0.0004	300.0	0.00
F21	1.58E-04	1.59E-05	0.451	0.045	0.0038	0.0004	298.5	0.00
F22	1.48E-04	1.54E-05	0.422	0.044	0.0036	0.0004	300.4	0.10
F23	1.49E-04	1.53E-05	0.425	0.044	0.0036	0.0004	299.7	0.10
F24	5.93E-05	5.95E-06	0.169	0.017	0.0014	0.0001	298.1	0.14
F25	5.80E-05	5.93E-06	0.165	0.017	0.0014	0.0001	298.1	0.10

Table C - 50. Run 3032 data, Mach 8 nozzle, $Re_\infty = 16.4\times10^6$/ft, α = 0°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.70E-03	3.70E-04	10.637	1.064	0.0894	0.0089	371.2	2.53
B02	3.82E-03	3.82E-04	10.997	1.100	0.0924	0.0092	373.8	2.53
B03	3.57E-03	3.57E-04	10.290	1.029	0.0865	0.0086	369.3	2.44
B04	3.24E-03	3.24E-04	9.313	0.933	0.0783	0.0078	363.5	2.32
B13	2.32E-03	2.39E-04	6.666	0.688	0.0560	0.0058	348.9	1.25
B14	2.48E-03	2.58E-04	7.137	0.743	0.0600	0.0062	352.9	1.27
C01	3.72E-03	3.72E-04	10.699	1.071	0.0899	0.0090	375.1	2.52
C02	3.81E-03	3.81E-04	10.972	1.097	0.0922	0.0092	374.0	2.52
C03	3.54E-03	3.54E-04	10.203	1.021	0.0857	0.0086	369.5	2.42
C04	3.69E-03	3.69E-04	10.627	1.063	0.0893	0.0089	371.3	2.47
C05	2.80E-03	2.82E-04	8.066	0.812	0.0678	0.0068	356.0	2.08
C06	2.38E-03	2.39E-04	6.840	0.687	0.0575	0.0058	348.5	1.75
C07	2.19E-03	2.19E-04	6.295	0.631	0.0529	0.0053	344.3	1.58
C08	2.23E-03	2.23E-04	6.406	0.642	0.0538	0.0054	344.4	1.71
C09	2.60E-03	2.62E-04	7.472	0.754	0.0628	0.0063	353.0	1.83
C10	2.68E-03	2.69E-04	7.709	0.776	0.0648	0.0065	357.4	1.64
C11	2.29E-03	2.35E-04	6.591	0.677	0.0554	0.0057	351.0	1.24
C12	2.01E-03	2.05E-04	5.775	0.590	0.0485	0.0050	345.0	1.15
C13	2.18E-03	2.25E-04	6.266	0.648	0.0527	0.0054	347.3	1.10
C14	2.32E-03	2.39E-04	6.670	0.688	0.0561	0.0058	350.5	1.13
C15	2.57E-03	2.73E-04	7.403	0.788	0.0622	0.0066	357.0	1.06
C16	2.85E-03	2.98E-04	8.218	0.861	0.0691	0.0072	362.3	1.24
C17	3.20E-03	3.32E-04	9.199	0.958	0.0773	0.0080	367.9	1.46
C18	3.54E-03	3.61E-04	10.196	1.042	0.0857	0.0087	372.8	1.83
C19	3.57E-03	3.64E-04	10.275	1.050	0.0863	0.0088	375.9	1.97
D02	3.78E-03	3.78E-04	10.888	1.089	0.0915	0.0092	373.3	2.49
D03	3.52E-03	3.52E-04	10.143	1.014	0.0852	0.0085	368.8	2.40
D04	3.23E-03	3.23E-04	9.291	0.929	0.0781	0.0078	363.8	2.23
D13	2.16E-03	2.21E-04	6.215	0.639	0.0522	0.0054	347.5	1.08
D14	2.34E-03	2.41E-04	6.737	0.697	0.0566	0.0058	352.3	1.01
E03	3.69E-03	3.69E-04	10.610	1.062	0.0892	0.0089	372.0	2.41
F20	6.90E-05	7.46E-06	0.199	0.021	0.0017	0.0002	298.1	0.10
F21	6.68E-05	7.34E-06	0.192	0.021	0.0016	0.0002	297.0	0.14
F22	1.09E-04	1.13E-05	0.314	0.032	0.0026	0.0003	299.0	0.18
F23	1.12E-04	1.15E-05	0.324	0.033	0.0027	0.0003	299.1	0.10
F24	6.66E-05	1.01E-05	0.192	0.029	0.0016	0.0002	298.1	0.10
F25	7.35E-05	9.67E-06	0.212	0.028	0.0018	0.0002	298.2	0.14

Table C - 51. Run 3032 data, Mach 8 nozzle, $Re_\infty = 16.4\times10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.78E-03	3.78E-04	10.852	1.085	0.0914	0.0091	382.4	0.47
B02	3.89E-03	3.89E-04	11.151	1.115	0.0939	0.0094	385.2	0.50
B03	3.71E-03	3.71E-04	10.644	1.064	0.0896	0.0090	380.5	0.52
B04	3.48E-03	3.48E-04	9.972	0.998	0.0840	0.0084	374.6	0.52
B13	1.98E-03	1.98E-04	5.690	0.569	0.0479	0.0048	353.0	0.00
B14	2.01E-03	2.01E-04	5.758	0.577	0.0485	0.0049	356.4	0.13
C01	3.70E-03	3.70E-04	10.602	1.060	0.0893	0.0089	386.0	0.43
C02	3.87E-03	3.87E-04	11.097	1.110	0.0935	0.0093	385.1	0.47
C03	3.65E-03	3.65E-04	10.469	1.047	0.0882	0.0088	380.4	0.43
C04	3.81E-03	3.81E-04	10.935	1.094	0.0921	0.0092	382.5	0.48
C05	3.10E-03	3.11E-04	8.894	0.891	0.0749	0.0075	366.4	0.53
C06	2.65E-03	2.66E-04	7.612	0.763	0.0641	0.0064	357.5	0.47
C07	2.21E-03	2.21E-04	6.336	0.634	0.0534	0.0053	351.3	0.33
C08	2.03E-03	2.04E-04	5.814	0.584	0.0490	0.0049	350.4	0.13
C09	2.25E-03	2.26E-04	6.458	0.650	0.0544	0.0055	359.2	0.18
C10	2.46E-03	2.48E-04	7.045	0.711	0.0593	0.0060	364.2	0.22
C11	2.35E-03	2.35E-04	6.741	0.675	0.0568	0.0057	357.6	0.35
C12	1.87E-03	1.88E-04	5.369	0.538	0.0452	0.0045	349.7	0.25
C13	1.83E-03	1.83E-04	5.245	0.525	0.0442	0.0044	350.8	0.22
C14	1.92E-03	1.92E-04	5.498	0.550	0.0463	0.0046	353.7	0.00
C15	2.05E-03	2.06E-04	5.885	0.590	0.0496	0.0050	359.8	0.13
C16	2.29E-03	2.30E-04	6.570	0.659	0.0553	0.0056	365.6	0.13
C17	2.64E-03	2.66E-04	7.572	0.762	0.0638	0.0064	372.5	0.13
C18	3.10E-03	3.12E-04	8.891	0.894	0.0749	0.0075	379.3	0.22
C19	3.22E-03	3.23E-04	9.229	0.926	0.0777	0.0078	383.5	0.18
D02	3.79E-03	3.79E-04	10.863	1.086	0.0915	0.0091	384.1	0.41
D03	3.61E-03	3.61E-04	10.340	1.034	0.0871	0.0087	379.5	0.47
D04	3.42E-03	3.42E-04	9.806	0.981	0.0826	0.0083	374.5	0.50
D13	1.84E-03	1.84E-04	5.274	0.528	0.0444	0.0044	350.8	0.22
D14	1.97E-03	1.97E-04	5.647	0.565	0.0476	0.0048	355.5	0.13
E03	3.70E-03	3.70E-04	10.612	1.061	0.0894	0.0089	382.6	0.45
F20	1.86E-04	1.90E-05	0.534	0.054	0.0045	0.0005	299.3	0.00
F21	1.50E-04	1.50E-05	0.429	0.043	0.0036	0.0004	297.9	0.09
F22	2.40E-04	2.41E-05	0.688	0.069	0.0058	0.0006	300.5	0.15
F23	1.03E-04	1.08E-05	0.294	0.031	0.0025	0.0003	299.4	0.09
F24	1.02E-04	1.06E-05	0.291	0.030	0.0025	0.0003	298.5	0.13
F25	9.77E-05	1.01E-05	0.280	0.029	0.0024	0.0002	298.6	0.00

Table C - 52. Run 3032 data, Mach 8 nozzle, $Re_\infty = 16.4\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.73E-03	3.73E-04	10.674	1.068	0.0900	0.0090	387.5	0.35
B02	3.80E-03	3.80E-04	10.889	1.089	0.0918	0.0092	390.0	0.38
B03	3.68E-03	3.68E-04	10.535	1.054	0.0888	0.0089	385.7	0.38
B04	3.55E-03	3.55E-04	10.173	1.017	0.0858	0.0086	380.3	0.46
B13	2.10E-03	2.10E-04	6.009	0.601	0.0507	0.0051	355.7	0.23
B14	2.10E-03	2.11E-04	6.015	0.604	0.0507	0.0051	358.4	0.25
C01	3.59E-03	3.59E-04	10.278	1.029	0.0866	0.0087	390.6	0.33
C02	3.80E-03	3.81E-04	10.893	1.090	0.0918	0.0092	390.1	0.35
C03	3.63E-03	3.63E-04	10.391	1.039	0.0876	0.0088	385.5	0.35
C04	3.79E-03	3.79E-04	10.857	1.086	0.0915	0.0092	387.9	0.40
C05	3.29E-03	3.29E-04	9.416	0.943	0.0794	0.0079	372.4	0.50
C06	2.98E-03	3.01E-04	8.522	0.861	0.0718	0.0073	363.6	0.60
C07	2.46E-03	2.52E-04	7.035	0.722	0.0593	0.0061	355.6	0.55
C08	1.96E-03	1.98E-04	5.613	0.565	0.0473	0.0048	352.4	0.31
C09	2.07E-03	2.07E-04	5.918	0.592	0.0499	0.0050	360.7	0.09
C10	2.19E-03	2.19E-04	6.274	0.628	0.0529	0.0053	365.5	0.13
C11	2.32E-03	2.32E-04	6.629	0.664	0.0559	0.0056	361.2	0.13
C12	2.15E-03	2.16E-04	6.150	0.617	0.0519	0.0052	353.8	0.37
C13	2.19E-03	2.23E-04	6.282	0.638	0.0530	0.0054	354.4	0.46
C14	2.15E-03	2.17E-04	6.165	0.620	0.0520	0.0052	356.7	0.34
C15	2.17E-03	2.18E-04	6.205	0.623	0.0523	0.0053	361.8	0.28
C16	2.28E-03	2.28E-04	6.539	0.654	0.0551	0.0055	367.1	0.13
C17	2.47E-03	2.47E-04	7.059	0.706	0.0595	0.0060	373.6	0.00
C18	2.82E-03	2.83E-04	8.081	0.811	0.0681	0.0068	380.9	0.23
C19	2.94E-03	2.95E-04	8.413	0.844	0.0709	0.0071	385.6	0.13
D02	3.73E-03	3.73E-04	10.688	1.069	0.0901	0.0090	388.9	0.35
D03	3.58E-03	3.58E-04	10.248	1.025	0.0864	0.0086	384.4	0.35
D04	3.48E-03	3.48E-04	9.966	0.997	0.0840	0.0084	379.8	0.46
D13	2.00E-03	2.01E-04	5.734	0.574	0.0483	0.0048	353.5	0.27
D14	2.11E-03	2.12E-04	6.044	0.606	0.0510	0.0051	358.0	0.31
E03	3.63E-03	3.63E-04	10.403	1.040	0.0877	0.0088	387.2	0.33
F20	1.59E-04	1.62E-05	0.456	0.046	0.0038	0.0004	299.7	0.09
F21	1.35E-04	1.36E-05	0.386	0.039	0.0033	0.0003	298.2	0.13
F22	1.77E-04	1.78E-05	0.508	0.051	0.0043	0.0004	300.8	0.09
F23	1.28E-04	1.28E-05	0.368	0.037	0.0031	0.0003	299.8	0.13
F24	6.63E-05	6.65E-06	0.190	0.019	0.0016	0.0002	298.5	0.09
F25	6.34E-05	6.37E-06	0.181	0.018	0.0015	0.0002	298.6	0.00

Table C - 53. Run 3032 data, Mach 8 nozzle, $Re_\infty = 16.4\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.64E-03	3.64E-04	10.377	1.038	0.0878	0.0088	392.3	0.63
B02	3.66E-03	3.66E-04	10.422	1.043	0.0881	0.0088	394.5	0.55
B03	3.60E-03	3.60E-04	10.269	1.027	0.0868	0.0087	390.7	0.61
B04	3.55E-03	3.55E-04	10.119	1.012	0.0856	0.0086	386.0	0.73
B13	2.12E-03	2.12E-04	6.047	0.605	0.0511	0.0051	359.0	0.37
B14	2.18E-03	2.18E-04	6.199	0.620	0.0524	0.0052	361.9	0.37
C01	3.44E-03	3.45E-04	9.811	0.982	0.0830	0.0083	394.9	0.52
C02	3.68E-03	3.69E-04	10.497	1.050	0.0888	0.0089	394.7	0.57
C03	3.56E-03	3.56E-04	10.133	1.014	0.0857	0.0086	390.4	0.61
C04	3.77E-03	3.77E-04	10.746	1.075	0.0909	0.0091	393.3	0.72
C05	3.48E-03	3.48E-04	9.911	0.992	0.0838	0.0084	379.4	0.86
C06	3.51E-03	3.53E-04	10.009	1.006	0.0846	0.0085	372.9	1.18
C07	3.36E-03	3.45E-04	9.576	0.983	0.0810	0.0083	366.0	1.46
C08	2.85E-03	3.06E-04	8.113	0.869	0.0686	0.0074	360.3	1.37
C09	2.10E-03	2.11E-04	5.997	0.602	0.0507	0.0051	363.3	0.43
C10	2.13E-03	2.13E-04	6.075	0.608	0.0514	0.0051	367.5	0.28
C11	2.21E-03	2.21E-04	6.292	0.629	0.0532	0.0053	364.1	0.37
C12	2.14E-03	2.14E-04	6.100	0.611	0.0516	0.0052	358.2	0.47
C13	2.42E-03	2.42E-04	6.889	0.689	0.0583	0.0058	360.1	0.61
C14	2.49E-03	2.52E-04	7.107	0.718	0.0601	0.0061	362.2	0.80
C15	2.34E-03	2.34E-04	6.675	0.668	0.0564	0.0056	365.8	0.52
C16	2.31E-03	2.31E-04	6.577	0.658	0.0556	0.0056	369.8	0.34
C17	2.34E-03	2.34E-04	6.667	0.667	0.0564	0.0056	375.1	0.19
C18	2.55E-03	2.56E-04	7.268	0.729	0.0615	0.0062	381.9	0.19
C19	2.64E-03	2.65E-04	7.521	0.755	0.0636	0.0064	387.1	0.19
D02	3.63E-03	3.63E-04	10.334	1.034	0.0874	0.0087	393.5	0.57
D03	3.54E-03	3.54E-04	10.099	1.010	0.0854	0.0085	389.4	0.64
D04	3.54E-03	3.54E-04	10.080	1.008	0.0852	0.0085	385.8	0.72
D13	2.11E-03	2.11E-04	6.021	0.602	0.0509	0.0051	357.4	0.52
D14	2.27E-03	2.27E-04	6.458	0.646	0.0546	0.0055	362.1	0.46
E03	3.59E-03	3.59E-04	10.224	1.023	0.0865	0.0086	392.0	0.61
F20	1.28E-04	1.79E-05	0.365	0.051	0.0031	0.0004	300.0	0.09
F21	1.42E-04	1.54E-05	0.404	0.044	0.0034	0.0004	298.7	0.09
F22	2.15E-04	2.20E-05	0.612	0.063	0.0052	0.0005	301.3	0.09
F23	1.45E-04	1.49E-05	0.413	0.042	0.0035	0.0004	300.2	0.00
F24	7.58E-05	7.58E-06	0.216	0.022	0.0018	0.0002	298.7	0.00
F25	7.39E-05	7.66E-06	0.210	0.022	0.0018	0.0002	298.8	0.00

Table C - 54. Run 3050 data, Mach 8 nozzle, $Re_\infty = 16.4\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.80E-03	3.80E-04	10.943	1.096	0.0919	0.0092	376.0	1.79
B02	3.78E-03	3.78E-04	10.893	1.090	0.0915	0.0092	375.5	1.81
B03	1.69E-03	5.41E-04	4.861	1.555	0.0408	0.0131	357.3	2.22
B04	3.71E-03	3.71E-04	10.683	1.069	0.0897	0.0090	374.5	1.76
B13	2.37E-03	2.39E-04	6.822	0.688	0.0573	0.0058	348.3	1.21
B14	2.28E-03	2.29E-04	6.560	0.661	0.0551	0.0056	346.6	1.20
C01	3.61E-03	3.61E-04	10.395	1.040	0.0873	0.0087	374.9	1.86
C02	3.84E-03	3.84E-04	11.062	1.106	0.0929	0.0093	376.0	1.90
C03	3.76E-03	3.77E-04	10.844	1.085	0.0911	0.0091	374.4	1.86
C04	3.70E-03	3.71E-04	10.669	1.067	0.0896	0.0090	373.9	1.82
C05	3.81E-03	3.81E-04	10.966	1.097	0.0921	0.0092	376.4	1.88
C06	3.77E-03	3.77E-04	10.868	1.087	0.0913	0.0091	374.9	1.93
C07	3.63E-03	3.63E-04	10.447	1.045	0.0878	0.0088	371.3	1.91
C08	3.26E-03	3.26E-04	9.388	0.939	0.0789	0.0079	363.9	1.78
C09	2.69E-03	2.72E-04	7.751	0.783	0.0651	0.0066	355.7	1.45
C10	2.62E-03	2.63E-04	7.555	0.758	0.0635	0.0064	355.1	1.43
C11	2.52E-03	2.52E-04	7.252	0.727	0.0609	0.0061	354.3	1.30
C12	2.34E-03	2.34E-04	6.737	0.675	0.0566	0.0057	351.8	1.18
C13	2.65E-03	2.65E-04	7.642	0.765	0.0642	0.0064	353.5	1.46
C14	2.46E-03	2.46E-04	7.074	0.708	0.0594	0.0059	347.8	1.53
C15	2.26E-03	2.26E-04	6.503	0.652	0.0546	0.0055	345.0	1.33
C16	2.23E-03	2.23E-04	6.414	0.642	0.0539	0.0054	345.0	1.26
C17	2.37E-03	2.38E-04	6.840	0.685	0.0575	0.0058	348.7	1.26
C18	2.72E-03	2.73E-04	7.830	0.787	0.0658	0.0066	355.3	1.38
C19	2.94E-03	2.95E-04	8.458	0.850	0.0711	0.0071	361.8	1.53
D02	4.66E-03	4.66E-04	13.422	1.343	0.1128	0.0113	391.6	2.11
D03	3.72E-03	3.72E-04	10.704	1.071	0.0899	0.0090	373.3	1.90
D04	3.75E-03	3.75E-04	10.803	1.081	0.0908	0.0091	374.3	1.90
D13	2.35E-03	2.37E-04	6.769	0.682	0.0569	0.0057	348.0	1.19
D14	2.31E-03	2.32E-04	6.649	0.667	0.0559	0.0056	346.5	1.27
E03	3.84E-03	3.84E-04	11.049	1.105	0.0928	0.0093	375.7	1.93
F20	1.70E-04	1.70E-05	0.489	0.049	0.0041	0.0004	303.3	0.18
F21	1.69E-04	1.71E-05	0.486	0.049	0.0041	0.0004	303.1	0.11
F22	1.75E-04	1.85E-05	0.504	0.053	0.0042	0.0004	303.3	0.14
F23	1.00E-04	1.01E-05	0.289	0.029	0.0024	0.0002	301.8	0.00
F24	9.50E-05	1.04E-05	0.274	0.030	0.0023	0.0003	301.6	0.14
F25	8.42E-05	9.57E-06	0.242	0.028	0.0020	0.0002	301.3	0.14

Table C - 55. Run 3050 data, Mach 8 nozzle, $Re_\infty = 16.4\times10^6$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.78E-03	3.78E-04	10.819	1.082	0.0912	0.0091	385.7	0.43
B02	3.73E-03	3.73E-04	10.688	1.069	0.0901	0.0090	385.1	0.45
B03	4.01E-03	4.59E-04	11.486	1.314	0.0968	0.0111	385.5	0.18
B04	3.79E-03	3.79E-04	10.869	1.087	0.0916	0.0092	384.7	0.47
B13	2.28E-03	2.28E-04	6.543	0.654	0.0551	0.0055	354.8	0.22
B14	2.20E-03	2.20E-04	6.304	0.631	0.0531	0.0053	352.7	0.25
C01	3.51E-03	3.51E-04	10.048	1.005	0.0847	0.0085	384.5	0.33
C02	3.79E-03	3.80E-04	10.873	1.088	0.0916	0.0092	386.0	0.40
C03	3.77E-03	3.77E-04	10.802	1.080	0.0910	0.0091	384.6	0.43
C04	3.78E-03	3.78E-04	10.844	1.084	0.0914	0.0091	384.3	0.45
C05	3.98E-03	3.98E-04	11.411	1.141	0.0962	0.0096	387.5	0.53
C06	4.01E-03	4.01E-04	11.488	1.150	0.0968	0.0097	386.5	0.57
C07	4.05E-03	4.05E-04	11.599	1.161	0.0978	0.0098	383.9	0.64
C08	4.21E-03	4.24E-04	12.053	1.215	0.1016	0.0102	378.8	0.92
C09	3.86E-03	4.01E-04	11.051	1.149	0.0931	0.0097	370.0	1.15
C10	2.75E-03	2.76E-04	7.875	0.791	0.0664	0.0067	363.4	0.48
C11	2.51E-03	2.51E-04	7.187	0.719	0.0606	0.0061	361.7	0.33
C12	2.23E-03	2.23E-04	6.390	0.639	0.0539	0.0054	357.9	0.28
C13	2.36E-03	2.37E-04	6.764	0.678	0.0570	0.0057	359.7	0.00
C14	2.61E-03	2.61E-04	7.466	0.747	0.0629	0.0063	356.7	0.35
C15	2.45E-03	2.45E-04	7.015	0.703	0.0591	0.0059	353.0	0.45
C16	2.26E-03	2.26E-04	6.478	0.648	0.0546	0.0055	352.0	0.31
C17	2.21E-03	2.21E-04	6.343	0.634	0.0535	0.0053	354.5	0.22
C18	2.38E-03	2.39E-04	6.832	0.684	0.0576	0.0058	360.8	0.13
C19	2.56E-03	2.56E-04	7.330	0.733	0.0618	0.0062	367.9	0.13
D02	4.49E-03	4.49E-04	12.852	1.286	0.1083	0.0108	402.4	0.38
D03	3.72E-03	3.72E-04	10.660	1.066	0.0898	0.0090	383.5	0.45
D04	3.81E-03	3.81E-04	10.925	1.093	0.0921	0.0092	384.8	0.47
D13	2.33E-03	2.33E-04	6.687	0.669	0.0564	0.0056	354.7	0.28
D14	2.23E-03	2.23E-04	6.383	0.638	0.0538	0.0054	352.8	0.33
E03	3.80E-03	3.80E-04	10.901	1.090	0.0919	0.0092	385.9	0.43
F20	1.38E-04	1.39E-05	0.396	0.040	0.0033	0.0003	303.7	0.13
F21	1.80E-04	1.81E-05	0.517	0.052	0.0044	0.0004	303.9	0.09
F22	2.80E-04	2.90E-05	0.801	0.083	0.0068	0.0007	304.6	0.00
F23	1.01E-04	1.06E-05	0.290	0.030	0.0024	0.0003	302.2	0.13
F24	8.67E-05	8.96E-06	0.248	0.026	0.0021	0.0002	301.9	0.09
F25	6.60E-05	7.15E-06	0.189	0.020	0.0016	0.0002	301.5	0.09

Table C - 56. Run 3050 data, Mach 8 nozzle, $Re_{\infty} = 16.4\times10^6$/ft, α = 20°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.79E-03	3.79E-04	10.849	1.085	0.0915	0.0091	390.5	0.48
B02	3.70E-03	3.70E-04	10.583	1.059	0.0892	0.0089	389.5	0.41
B03	3.06E-03	3.49E-04	8.765	0.997	0.0739	0.0084	386.2	0.77
B04	3.86E-03	3.86E-04	11.050	1.105	0.0932	0.0093	390.0	0.52
B13	2.24E-03	2.24E-04	6.408	0.641	0.0540	0.0054	357.6	0.25
B14	2.08E-03	2.08E-04	5.946	0.596	0.0501	0.0050	355.1	0.22
C01	3.40E-03	3.40E-04	9.732	0.973	0.0820	0.0082	388.4	0.35
C02	3.73E-03	3.73E-04	10.690	1.069	0.0901	0.0090	390.4	0.41
C03	3.76E-03	3.76E-04	10.763	1.076	0.0907	0.0091	389.3	0.43
C04	3.83E-03	3.83E-04	10.960	1.096	0.0924	0.0092	389.5	0.45
C05	4.08E-03	4.08E-04	11.683	1.169	0.0985	0.0099	393.3	0.53
C06	4.13E-03	4.13E-04	11.830	1.183	0.0997	0.0100	392.6	0.53
C07	4.19E-03	4.19E-04	12.003	1.200	0.1012	0.0101	390.7	0.60
C08	4.46E-03	4.46E-04	12.770	1.277	0.1077	0.0108	387.8	0.72
C09	4.69E-03	4.70E-04	13.424	1.346	0.1132	0.0113	382.8	1.08
C10	3.19E-03	3.23E-04	9.147	0.925	0.0771	0.0078	370.0	0.71
C11	2.53E-03	2.53E-04	7.232	0.723	0.0610	0.0061	365.3	0.38
C12	2.22E-03	2.22E-04	6.351	0.635	0.0535	0.0054	360.8	0.28
C13	2.23E-03	2.23E-04	6.383	0.639	0.0538	0.0054	361.6	0.22
C14	2.32E-03	2.34E-04	6.651	0.671	0.0561	0.0057	359.3	0.18
C15	2.43E-03	2.43E-04	6.957	0.697	0.0587	0.0059	357.0	0.31
C16	2.35E-03	2.35E-04	6.724	0.674	0.0567	0.0057	355.7	0.40
C17	2.22E-03	2.22E-04	6.367	0.637	0.0537	0.0054	357.3	0.31
C18	2.41E-03	2.41E-04	6.901	0.690	0.0582	0.0058	363.4	0.25
C19	2.62E-03	2.63E-04	7.511	0.752	0.0633	0.0063	371.0	0.38
D02	4.31E-03	4.31E-04	12.340	1.235	0.1040	0.0104	406.5	0.33
D03	3.72E-03	3.72E-04	10.662	1.066	0.0899	0.0090	388.2	0.38
D04	3.86E-03	3.86E-04	11.047	1.105	0.0931	0.0093	390.0	0.47
D13	2.21E-03	2.21E-04	6.323	0.634	0.0533	0.0053	357.2	0.28
D14	2.16E-03	2.16E-04	6.193	0.620	0.0522	0.0052	355.6	0.25
E03	3.79E-03	3.79E-04	10.844	1.085	0.0914	0.0091	390.5	0.40
F20	1.42E-04	1.43E-05	0.408	0.041	0.0034	0.0003	303.9	0.00
F21	1.95E-04	1.95E-05	0.558	0.056	0.0047	0.0005	304.3	0.09
F22	2.83E-04	2.87E-05	0.811	0.082	0.0068	0.0007	305.5	0.13
F23	1.48E-04	1.48E-05	0.423	0.042	0.0036	0.0004	302.7	0.09
F24	5.09E-05	5.12E-06	0.146	0.015	0.0012	0.0001	301.8	0.00
F25	3.65E-05	3.85E-06	0.105	0.011	0.0009	0.0001	301.4	0.18

Table C - 57. Run 3046 data, Mach 8 nozzle, $Re_\infty = 16.7\times10^6$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.99E-03	4.12E-04	11.538	1.199	0.0967	0.0100	379.1	9.60
B02	3.84E-03	3.99E-04	11.088	1.162	0.0929	0.0097	377.3	9.01
B03	3.84E-03	3.98E-04	11.104	1.160	0.0931	0.0097	376.8	9.08
B04	3.89E-03	4.06E-04	11.259	1.183	0.0944	0.0099	378.0	9.17
B13	2.27E-03	2.29E-04	6.565	0.661	0.0550	0.0055	346.6	6.51
B14	2.20E-03	2.24E-04	6.373	0.645	0.0534	0.0054	345.0	6.54
C01	3.58E-03	3.72E-04	10.351	1.084	0.0868	0.0090	376.4	8.73
C02	3.84E-03	3.89E-04	11.090	1.129	0.0930	0.0094	377.4	9.19
C03	3.81E-03	3.90E-04	11.009	1.134	0.0923	0.0095	376.6	9.01
C04	3.87E-03	3.97E-04	11.178	1.155	0.0937	0.0096	378.1	9.09
C05	4.41E-03	4.59E-04	12.750	1.337	0.1069	0.0112	391.5	9.38
C06	4.05E-03	4.12E-04	11.705	1.199	0.0981	0.0100	381.2	9.61
C07	4.16E-03	4.23E-04	12.013	1.229	0.1007	0.0103	382.8	9.97
C08	3.75E-03	3.81E-04	10.845	1.103	0.0909	0.0092	372.4	10.79
C09	2.64E-03	2.80E-04	7.627	0.805	0.0639	0.0068	354.4	8.62
C10	2.46E-03	2.47E-04	7.121	0.714	0.0597	0.0060	353.2	7.12
C11	2.58E-03	2.62E-04	7.461	0.762	0.0625	0.0064	355.3	7.20
C12	2.35E-03	2.42E-04	6.802	0.705	0.0570	0.0059	351.0	6.70
C13	2.51E-03	2.57E-04	7.269	0.749	0.0609	0.0063	352.1	6.86
C14	2.50E-03	2.54E-04	7.233	0.732	0.0606	0.0062	350.6	7.37
C15	2.24E-03	2.27E-04	6.474	0.653	0.0543	0.0055	345.7	6.50
C16	2.15E-03	2.17E-04	6.229	0.626	0.0522	0.0052	344.5	6.09
C17	2.11E-03	2.12E-04	6.094	0.614	0.0511	0.0051	343.6	5.89
C18	2.33E-03	2.34E-04	6.735	0.678	0.0565	0.0057	348.3	6.41
C19	2.62E-03	2.64E-04	7.566	0.766	0.0634	0.0064	356.6	7.33
D02	3.74E-03	3.80E-04	10.820	1.102	0.0907	0.0092	375.3	9.08
D03	3.76E-03	3.82E-04	10.863	1.110	0.0911	0.0093	375.7	9.07
D04	3.91E-03	3.99E-04	11.295	1.161	0.0947	0.0097	378.3	9.30
D13	2.28E-03	2.29E-04	6.591	0.663	0.0553	0.0055	346.3	6.64
D14	2.26E-03	2.27E-04	6.536	0.658	0.0548	0.0055	345.8	6.59
E03	3.89E-03	3.98E-04	11.241	1.157	0.0942	0.0097	377.7	9.35
F20	1.28E-04	1.36E-05	0.371	0.039	0.0031	0.0003	299.4	0.46
F21	1.67E-04	1.73E-05	0.484	0.050	0.0041	0.0004	300.3	0.53
F22	2.88E-04	3.03E-05	0.832	0.087	0.0070	0.0007	303.0	1.02
F23	9.53E-05	1.04E-05	0.275	0.030	0.0023	0.0003	298.6	0.30
F24	7.93E-05	8.82E-06	0.229	0.025	0.0019	0.0002	298.3	0.28
F25	5.80E-05	6.33E-06	0.168	0.018	0.0014	0.0002	297.7	0.28

Table C - 58. Run 3040 data, Mach 8 nozzle, $Re_\infty = 17.0\times10^6$/ft, α = 0°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.80E-03	3.81E-04	11.172	1.118	0.0928	0.0093	366.4	2.13
B02	4.00E-03	4.00E-04	11.738	1.174	0.0975	0.0098	369.5	2.19
B03	3.69E-03	3.70E-04	10.835	1.089	0.0900	0.0090	364.0	2.01
B04	3.16E-03	3.17E-04	9.286	0.930	0.0771	0.0077	357.7	1.67
B13	2.37E-03	2.42E-04	6.973	0.713	0.0579	0.0059	344.8	1.09
B14	2.61E-03	2.67E-04	7.661	0.787	0.0636	0.0065	349.5	1.09
C01	3.84E-03	3.85E-04	11.281	1.131	0.0937	0.0094	370.0	2.12
C02	3.86E-03	3.87E-04	11.341	1.137	0.0942	0.0094	368.3	2.01
C03	3.47E-03	3.47E-04	10.183	1.020	0.0846	0.0085	362.3	1.79
C04	3.10E-03	3.12E-04	9.116	0.917	0.0757	0.0076	357.7	1.47
C05	2.55E-03	2.57E-04	7.481	0.757	0.0621	0.0063	348.6	1.13
C06	2.30E-03	2.35E-04	6.756	0.692	0.0561	0.0057	345.3	0.88
C07	2.15E-03	2.18E-04	6.313	0.642	0.0524	0.0053	342.1	0.87
C08	2.05E-03	2.08E-04	6.031	0.612	0.0501	0.0051	340.7	0.88
C09	2.28E-03	2.29E-04	6.687	0.673	0.0555	0.0056	347.4	0.96
C10	2.59E-03	2.63E-04	7.600	0.775	0.0631	0.0064	352.0	1.13
C11	2.44E-03	2.55E-04	7.152	0.754	0.0594	0.0062	347.6	1.02
C12	2.12E-03	2.18E-04	6.222	0.643	0.0517	0.0053	342.3	0.92
C13	2.27E-03	2.32E-04	6.676	0.683	0.0554	0.0057	343.6	1.01
C14	2.48E-03	2.52E-04	7.286	0.743	0.0605	0.0062	347.4	1.04
C15	2.81E-03	2.87E-04	8.265	0.846	0.0686	0.0070	352.6	1.23
C16	3.24E-03	3.28E-04	9.520	0.966	0.0791	0.0080	359.3	1.51
C17	3.62E-03	3.63E-04	10.619	1.069	0.0882	0.0089	364.5	1.81
C18	3.97E-03	3.98E-04	11.656	1.171	0.0968	0.0097	369.7	2.06
C19	4.09E-03	4.11E-04	12.008	1.208	0.0997	0.0100	374.1	2.18
D02	3.87E-03	3.88E-04	11.368	1.140	0.0944	0.0095	368.6	1.97
D03	3.47E-03	3.47E-04	10.177	1.021	0.0845	0.0085	362.6	1.77
D04	3.08E-03	3.08E-04	9.033	0.905	0.0750	0.0075	357.0	1.56
D13	2.36E-03	2.40E-04	6.931	0.707	0.0576	0.0059	344.5	1.10
D14	2.56E-03	2.63E-04	7.515	0.775	0.0624	0.0064	348.7	1.08
E03	3.69E-03	3.70E-04	10.846	1.086	0.0901	0.0090	365.9	1.91
F20	8.35E-05	1.13E-05	0.245	0.033	0.0020	0.0003	297.6	0.23
F21	7.57E-05	1.05E-05	0.222	0.031	0.0018	0.0003	297.5	0.08
F22	1.49E-04	1.54E-05	0.437	0.045	0.0036	0.0004	298.8	0.14
F23	1.73E-04	1.75E-05	0.509	0.051	0.0042	0.0004	299.5	0.00
F24	1.12E-04	1.26E-05	0.329	0.037	0.0027	0.0003	298.3	0.11
F25	1.27E-04	1.45E-05	0.373	0.043	0.0031	0.0004	298.6	0.08

Table C - 59. Run 3040 data, Mach 8 nozzle, $Re_\infty = 17.0\times10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.79E-03	3.79E-04	11.068	1.107	0.0921	0.0092	376.3	0.41
B02	3.87E-03	3.87E-04	11.304	1.131	0.0941	0.0094	379.2	0.41
B03	3.56E-03	3.56E-04	10.411	1.042	0.0867	0.0087	373.1	0.33
B04	3.23E-03	3.24E-04	9.433	0.946	0.0785	0.0079	365.9	0.43
B13	2.28E-03	2.28E-04	6.666	0.667	0.0555	0.0055	350.1	0.25
B14	2.35E-03	2.35E-04	6.872	0.688	0.0572	0.0057	354.3	0.22
C01	3.69E-03	3.69E-04	10.798	1.080	0.0899	0.0090	379.6	0.40
C02	3.82E-03	3.82E-04	11.164	1.116	0.0929	0.0093	378.0	0.38
C03	3.46E-03	3.47E-04	10.130	1.013	0.0843	0.0084	371.0	0.40
C04	3.19E-03	3.20E-04	9.335	0.937	0.0777	0.0078	365.6	0.53
C05	2.65E-03	2.69E-04	7.758	0.786	0.0646	0.0065	355.0	0.48
C06	2.42E-03	2.47E-04	7.067	0.723	0.0588	0.0060	350.8	0.45
C07	2.20E-03	2.24E-04	6.425	0.655	0.0535	0.0055	347.1	0.43
C08	1.93E-03	1.95E-04	5.654	0.569	0.0471	0.0047	344.7	0.22
C09	2.13E-03	2.13E-04	6.232	0.624	0.0519	0.0052	351.9	0.22
C10	2.31E-03	2.31E-04	6.755	0.676	0.0562	0.0056	356.6	0.25
C11	2.65E-03	2.65E-04	7.759	0.776	0.0646	0.0065	354.9	0.47
C12	2.41E-03	2.45E-04	7.055	0.715	0.0587	0.0060	349.3	0.52
C13	2.36E-03	2.37E-04	6.909	0.693	0.0575	0.0058	349.6	0.38
C14	2.34E-03	2.34E-04	6.853	0.685	0.0571	0.0057	352.6	0.28
C15	2.47E-03	2.48E-04	7.225	0.725	0.0602	0.0060	357.5	0.13
C16	2.79E-03	2.81E-04	8.148	0.821	0.0678	0.0068	364.9	0.00
C17	3.26E-03	3.28E-04	9.540	0.959	0.0794	0.0080	371.8	0.22
C18	3.75E-03	3.76E-04	10.978	1.100	0.0914	0.0092	378.7	0.38
C19	3.90E-03	3.91E-04	11.405	1.142	0.0950	0.0095	383.9	0.35
D02	3.81E-03	3.81E-04	11.132	1.113	0.0927	0.0093	378.0	0.41
D03	3.49E-03	3.49E-04	10.191	1.020	0.0848	0.0085	371.3	0.40
D04	3.24E-03	3.25E-04	9.480	0.952	0.0789	0.0079	365.5	0.50
D13	2.33E-03	2.33E-04	6.814	0.682	0.0567	0.0057	350.1	0.28
D14	2.40E-03	2.40E-04	7.009	0.701	0.0584	0.0058	353.9	0.25
E03	3.64E-03	3.64E-04	10.649	1.065	0.0887	0.0089	375.0	0.41
F20	2.07E-04	2.10E-05	0.606	0.061	0.0050	0.0005	298.8	0.09
F21	1.53E-04	1.56E-05	0.448	0.045	0.0037	0.0004	298.3	0.13
F22	2.35E-04	2.35E-05	0.687	0.069	0.0057	0.0006	300.1	0.09
F23	8.35E-05	8.37E-06	0.244	0.024	0.0020	0.0002	299.4	0.09
F24	9.69E-05	9.70E-06	0.283	0.028	0.0024	0.0002	298.5	0.00
F25	9.33E-05	9.34E-06	0.273	0.027	0.0023	0.0002	298.7	0.15

Table C - 60. Run 3040 data, Mach 8 nozzle, $Re_\infty = 17.0\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.78E-03	3.78E-04	11.001	1.100	0.0918	0.0092	380.9	0.33
B02	3.77E-03	3.77E-04	10.971	1.097	0.0915	0.0092	383.3	0.38
B03	3.45E-03	3.45E-04	10.049	1.005	0.0839	0.0084	376.7	0.35
B04	3.50E-03	3.51E-04	10.208	1.022	0.0852	0.0085	371.7	0.48
B13	2.39E-03	2.39E-04	6.966	0.697	0.0581	0.0058	353.6	0.28
B14	2.30E-03	2.30E-04	6.698	0.670	0.0559	0.0056	356.5	0.21
C01	3.56E-03	3.56E-04	10.357	1.036	0.0864	0.0086	383.5	0.30
C02	3.78E-03	3.78E-04	11.013	1.101	0.0919	0.0092	382.4	0.38
C03	3.57E-03	3.57E-04	10.406	1.041	0.0868	0.0087	375.9	0.40
C04	3.50E-03	3.51E-04	10.194	1.021	0.0851	0.0085	371.4	0.48
C05	3.28E-03	3.31E-04	9.552	0.964	0.0797	0.0080	362.0	0.65
C06	3.22E-03	3.28E-04	9.370	0.955	0.0782	0.0080	358.4	0.76
C07	3.02E-03	3.10E-04	8.790	0.903	0.0733	0.0075	354.4	0.76
C08	2.41E-03	2.46E-04	7.017	0.716	0.0586	0.0060	349.4	0.52
C09	2.29E-03	2.30E-04	6.665	0.669	0.0556	0.0056	355.1	0.30
C10	2.28E-03	2.28E-04	6.637	0.664	0.0554	0.0055	358.9	0.16
C11	2.50E-03	2.50E-04	7.270	0.728	0.0607	0.0061	358.3	0.21
C12	2.72E-03	2.72E-04	7.925	0.792	0.0661	0.0066	355.3	0.43
C13	2.58E-03	2.58E-04	7.505	0.752	0.0626	0.0063	354.1	0.37
C14	2.39E-03	2.39E-04	6.947	0.696	0.0580	0.0058	355.4	0.25
C15	2.29E-03	2.30E-04	6.682	0.669	0.0558	0.0056	359.0	0.00
C16	2.42E-03	2.43E-04	7.045	0.709	0.0588	0.0059	365.5	0.13
C17	2.75E-03	2.79E-04	8.012	0.812	0.0669	0.0068	372.7	0.13
C18	3.28E-03	3.32E-04	9.552	0.969	0.0797	0.0081	380.7	0.13
C19	3.48E-03	3.51E-04	10.129	1.024	0.0845	0.0085	386.7	0.19
D02	3.77E-03	3.77E-04	10.981	1.098	0.0916	0.0092	382.3	0.38
D03	3.58E-03	3.58E-04	10.420	1.042	0.0869	0.0087	376.2	0.42
D04	3.54E-03	3.55E-04	10.318	1.033	0.0861	0.0086	371.5	0.46
D13	2.41E-03	2.41E-04	7.019	0.702	0.0586	0.0059	353.7	0.30
D14	2.32E-03	2.32E-04	6.748	0.675	0.0563	0.0056	356.2	0.19
E03	3.66E-03	3.66E-04	10.662	1.066	0.0890	0.0089	379.5	0.33
F20	1.99E-04	1.99E-05	0.580	0.058	0.0048	0.0005	299.4	0.13
F21	1.53E-04	1.53E-05	0.444	0.044	0.0037	0.0004	298.8	0.09
F22	1.68E-04	1.78E-05	0.489	0.052	0.0041	0.0004	300.3	0.00
F23	1.12E-04	1.13E-05	0.327	0.033	0.0027	0.0003	299.5	0.09
F24	7.38E-05	7.48E-06	0.215	0.022	0.0018	0.0002	298.5	0.09
F25	6.62E-05	6.85E-06	0.193	0.020	0.0016	0.0002	298.6	0.09

Table C - 61. Run 3040 data, Mach 8 nozzle, $Re_\infty = 17.0\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	$St\times(ReD)^{(1/2)}$	$\Delta St\times(ReD)^{(1/2)}$	$St\times(ReD)^{(1/5)}$	$\Delta St\times(ReD)^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.79E-03	3.79E-04	10.977	1.098	0.0920	0.0092	386.0	0.60
B02	3.74E-03	3.74E-04	10.822	1.083	0.0907	0.0091	387.7	0.48
B03	3.65E-03	3.67E-04	10.575	1.062	0.0886	0.0089	382.0	0.68
B04	3.67E-03	3.67E-04	10.627	1.063	0.0890	0.0089	378.1	0.66
B13	2.36E-03	2.36E-04	6.835	0.684	0.0573	0.0057	356.9	0.34
B14	2.33E-03	2.33E-04	6.741	0.674	0.0565	0.0056	359.4	0.23
C01	3.50E-03	3.50E-04	10.134	1.014	0.0849	0.0085	387.6	0.48
C02	3.79E-03	3.79E-04	10.972	1.097	0.0919	0.0092	387.2	0.56
C03	3.66E-03	3.66E-04	10.595	1.060	0.0888	0.0089	381.4	0.65
C04	3.69E-03	3.69E-04	10.681	1.068	0.0895	0.0090	378.0	0.74
C05	3.59E-03	3.59E-04	10.385	1.039	0.0870	0.0087	370.1	0.84
C06	3.72E-03	3.72E-04	10.750	1.076	0.0901	0.0090	368.1	1.01
C07	3.73E-03	3.76E-04	10.799	1.086	0.0905	0.0091	365.1	1.15
C08	3.24E-03	3.35E-04	9.362	0.968	0.0784	0.0081	358.6	1.21
C09	2.77E-03	2.83E-04	8.028	0.817	0.0673	0.0069	361.2	0.84
C10	2.31E-03	2.31E-04	6.697	0.670	0.0561	0.0056	361.9	0.37
C11	2.45E-03	2.45E-04	7.079	0.708	0.0593	0.0059	361.5	0.38
C12	2.52E-03	2.53E-04	7.292	0.733	0.0611	0.0061	359.4	0.40
C13	2.77E-03	2.77E-04	8.010	0.801	0.0671	0.0067	359.6	0.59
C14	2.53E-03	2.53E-04	7.325	0.732	0.0614	0.0061	359.6	0.47
C15	2.28E-03	2.28E-04	6.587	0.659	0.0552	0.0055	361.1	0.31
C16	2.21E-03	2.21E-04	6.406	0.641	0.0537	0.0054	366.0	0.18
C17	2.36E-03	2.36E-04	6.815	0.684	0.0571	0.0057	372.3	0.18
C18	2.70E-03	2.72E-04	7.808	0.788	0.0654	0.0066	380.3	0.10
C19	2.86E-03	2.90E-04	8.282	0.839	0.0694	0.0070	386.8	0.10
D02	3.78E-03	3.78E-04	10.938	1.094	0.0916	0.0092	387.1	0.52
D03	3.70E-03	3.70E-04	10.717	1.072	0.0898	0.0090	381.9	0.65
D04	3.73E-03	3.74E-04	10.805	1.081	0.0905	0.0091	378.2	0.74
D13	2.43E-03	2.43E-04	7.028	0.703	0.0589	0.0059	357.4	0.40
D14	2.36E-03	2.36E-04	6.833	0.683	0.0572	0.0057	359.2	0.37
E03	3.74E-03	3.74E-04	10.820	1.082	0.0907	0.0091	384.7	0.60
F20	1.80E-04	1.85E-05	0.521	0.054	0.0044	0.0004	299.8	0.00
F21	1.66E-04	1.66E-05	0.480	0.048	0.0040	0.0004	299.2	0.10
F22	1.47E-04	1.52E-05	0.425	0.044	0.0036	0.0004	300.3	0.10
F23	1.04E-04	1.04E-05	0.300	0.030	0.0025	0.0003	299.6	0.20
F24	8.40E-05	8.71E-06	0.243	0.025	0.0020	0.0002	298.6	0.00
F25	7.52E-05	7.70E-06	0.218	0.022	0.0018	0.0002	298.7	0.18

Table C - 62. Run 3044 data, Mach 8 nozzle, $Re_\infty = 21.2\times10^6$/ft, α = 0°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.91E-03	3.92E-04	12.819	1.296	0.0996	0.0100	348.1	4.45
B02	4.07E-03	4.07E-04	13.348	1.341	0.1037	0.0104	350.5	4.63
B03	3.74E-03	3.74E-04	12.268	1.232	0.0953	0.0096	344.8	4.57
B04	3.46E-03	3.47E-04	11.363	1.144	0.0883	0.0089	341.8	4.25
B13	2.49E-03	2.50E-04	8.171	0.827	0.0635	0.0064	329.8	3.15
B14	2.90E-03	2.92E-04	9.517	0.966	0.0739	0.0075	334.7	3.62
C01	4.04E-03	4.06E-04	13.252	1.341	0.1029	0.0104	351.6	4.63
C02	4.09E-03	4.11E-04	13.422	1.358	0.1043	0.0105	350.8	4.59
C03	3.74E-03	3.77E-04	12.269	1.246	0.0953	0.0096	345.3	4.36
C04	3.51E-03	3.57E-04	11.507	1.182	0.0894	0.0091	342.7	4.12
C05	2.87E-03	2.89E-04	9.416	0.953	0.0731	0.0074	334.5	3.65
C06	2.56E-03	2.57E-04	8.406	0.848	0.0653	0.0066	330.6	3.32
C07	2.29E-03	2.32E-04	7.515	0.768	0.0584	0.0059	327.2	2.98
C08	2.11E-03	2.14E-04	6.919	0.710	0.0537	0.0055	325.3	2.72
C09	2.26E-03	2.31E-04	7.431	0.764	0.0577	0.0059	329.2	2.87
C10	2.37E-03	2.41E-04	7.787	0.796	0.0605	0.0062	330.8	2.99
C11	2.37E-03	2.38E-04	7.778	0.785	0.0604	0.0061	329.3	3.13
C12	2.18E-03	2.22E-04	7.168	0.734	0.0557	0.0057	327.1	2.79
C13	2.38E-03	2.40E-04	7.820	0.791	0.0607	0.0061	329.1	3.03
C14	2.68E-03	2.72E-04	8.790	0.901	0.0683	0.0070	332.0	3.31
C15	3.15E-03	3.16E-04	10.331	1.044	0.0803	0.0081	337.5	3.93
C16	3.46E-03	3.48E-04	11.357	1.148	0.0882	0.0089	341.9	4.13
C17	3.79E-03	3.81E-04	12.450	1.255	0.0967	0.0097	346.4	4.40
C18	4.17E-03	4.18E-04	13.671	1.378	0.1062	0.0107	351.6	4.67
C19	4.31E-03	4.33E-04	14.139	1.430	0.1098	0.0111	355.1	4.84
D02	3.98E-03	3.99E-04	13.070	1.313	0.1015	0.0102	349.2	4.59
D03	3.66E-03	3.67E-04	11.996	1.210	0.0932	0.0094	344.9	4.28
D04	3.35E-03	3.37E-04	10.986	1.111	0.0853	0.0086	341.0	4.02
D13	2.44E-03	2.45E-04	7.994	0.810	0.0621	0.0063	329.2	3.10
D14	2.82E-03	2.83E-04	9.245	0.932	0.0718	0.0072	333.8	3.57
E03	3.92E-03	3.94E-04	12.865	1.301	0.0999	0.0101	348.5	4.48
F20	9.36E-05	9.80E-06	0.307	0.032	0.0024	0.0003	297.2	0.00
F21	7.86E-05	8.33E-06	0.258	0.027	0.0020	0.0002	297.0	0.17
F22	1.44E-04	1.45E-05	0.473	0.048	0.0037	0.0004	297.9	0.24
F23	1.48E-04	1.49E-05	0.485	0.049	0.0038	0.0004	298.0	0.20
F24	8.98E-05	9.50E-06	0.295	0.031	0.0023	0.0002	297.2	0.10
F25	1.09E-04	1.20E-05	0.359	0.040	0.0028	0.0003	297.4	0.10

Table C - 63. Run 3030 data, Mach 8 nozzle, $Re_\infty = 21.5\times10^6$/ft, $\alpha = 0°$.

Gauge	St	ΔSt	$St\times(ReD)^{(1/2)}$	$\Delta St\times(ReD)^{(1/2)}$	$St\times(ReD)^{(1/5)}$	$\Delta St\times(ReD)^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.90E-03	3.90E-04	12.921	1.293	0.0998	0.0100	356.6	3.46
B02	4.16E-03	4.17E-04	13.787	1.380	0.1065	0.0107	361.1	3.57
B03	3.79E-03	3.79E-04	12.566	1.257	0.0971	0.0097	354.6	3.47
B04	3.60E-03	3.60E-04	11.919	1.192	0.0921	0.0092	351.0	3.41
B13	2.63E-03	2.71E-04	8.697	0.898	0.0672	0.0069	337.1	2.42
B14	2.89E-03	3.01E-04	9.571	1.000	0.0740	0.0077	341.0	2.59
C01	4.04E-03	4.06E-04	13.367	1.347	0.1033	0.0104	361.2	3.46
C02	4.14E-03	4.14E-04	13.702	1.374	0.1059	0.0106	360.3	3.57
C03	3.75E-03	3.75E-04	12.409	1.241	0.0959	0.0096	354.5	3.43
C04	3.45E-03	3.46E-04	11.437	1.145	0.0884	0.0088	348.8	3.34
C05	3.07E-03	3.08E-04	10.159	1.019	0.0785	0.0079	342.9	3.08
C06	2.67E-03	2.70E-04	8.849	0.892	0.0684	0.0069	337.1	2.78
C07	2.25E-03	2.29E-04	7.459	0.756	0.0576	0.0058	331.4	2.43
C08	2.10E-03	2.10E-04	6.950	0.695	0.0537	0.0054	329.9	2.10
C09	2.40E-03	2.42E-04	7.947	0.804	0.0614	0.0062	335.4	2.35
C10	2.55E-03	2.56E-04	8.454	0.848	0.0653	0.0066	337.0	2.76
C11	2.26E-03	2.27E-04	7.477	0.751	0.0578	0.0058	332.7	2.31
C12	2.13E-03	2.15E-04	7.069	0.712	0.0546	0.0055	331.0	2.12
C13	2.67E-03	2.74E-04	8.850	0.911	0.0684	0.0070	338.7	2.42
C14	2.60E-03	2.67E-04	8.624	0.887	0.0666	0.0068	337.0	2.39
C15	2.94E-03	3.05E-04	9.720	1.011	0.0751	0.0078	342.0	2.59
C16	3.32E-03	3.44E-04	11.001	1.141	0.0850	0.0088	347.8	2.85
C17	3.68E-03	3.79E-04	12.183	1.257	0.0941	0.0097	353.2	3.09
C18	4.01E-03	4.06E-04	13.285	1.346	0.1026	0.0104	358.0	3.42
C19	4.04E-03	4.11E-04	13.395	1.364	0.1035	0.0105	360.5	3.47
D02	3.99E-03	4.00E-04	13.216	1.325	0.1021	0.0102	357.9	3.49
D03	3.74E-03	3.74E-04	12.384	1.239	0.0957	0.0096	353.6	3.45
D04	3.57E-03	3.57E-04	11.809	1.181	0.0912	0.0091	350.6	3.40
D13	2.52E-03	2.62E-04	8.343	0.868	0.0645	0.0067	335.8	2.30
D14	2.77E-03	2.89E-04	9.161	0.959	0.0708	0.0074	339.8	2.43
E03	3.94E-03	3.95E-04	13.054	1.309	0.1009	0.0101	357.3	3.43
F20	5.99E-05	1.17E-05	0.198	0.039	0.0015	0.0003	296.1	0.14
F21	5.15E-05	8.04E-06	0.170	0.027	0.0013	0.0002	295.0	0.22
F22	1.04E-04	1.29E-05	0.346	0.043	0.0027	0.0003	296.9	0.00
F23	1.27E-04	1.47E-05	0.421	0.049	0.0033	0.0004	297.4	0.08
F24	7.22E-05	8.46E-06	0.239	0.028	0.0018	0.0002	296.5	0.18
F25	8.71E-05	1.13E-05	0.289	0.038	0.0022	0.0003	296.7	0.11

Table C - 64. Run 3030 data, Mach 8 nozzle, $Re_\infty = 21.5\times10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.01E-03	4.01E-04	13.241	1.324	0.1025	0.0102	371.8	0.78
B02	4.13E-03	4.13E-04	13.643	1.364	0.1056	0.0106	375.9	0.71
B03	3.94E-03	3.94E-04	13.017	1.302	0.1007	0.0101	369.9	0.77
B04	3.86E-03	3.87E-04	12.760	1.277	0.0987	0.0099	366.6	0.81
B13	2.27E-03	2.27E-04	7.485	0.749	0.0579	0.0058	345.0	0.38
B14	2.37E-03	2.38E-04	7.817	0.786	0.0605	0.0061	348.7	0.23
C01	3.89E-03	3.89E-04	12.842	1.284	0.0994	0.0099	375.2	0.67
C02	4.12E-03	4.12E-04	13.599	1.360	0.1052	0.0105	375.2	0.72
C03	3.86E-03	3.86E-04	12.759	1.276	0.0987	0.0099	369.4	0.72
C04	3.69E-03	3.69E-04	12.201	1.220	0.0944	0.0094	364.0	0.76
C05	3.48E-03	3.48E-04	11.487	1.150	0.0889	0.0089	358.2	0.81
C06	3.35E-03	3.37E-04	11.053	1.111	0.0855	0.0086	352.8	0.94
C07	2.92E-03	2.97E-04	9.663	0.981	0.0748	0.0076	345.4	0.93
C08	2.32E-03	2.35E-04	7.667	0.775	0.0593	0.0060	339.9	0.65
C09	2.25E-03	2.25E-04	7.437	0.744	0.0575	0.0058	344.2	0.40
C10	2.36E-03	2.37E-04	7.801	0.784	0.0604	0.0061	346.8	0.34
C11	2.38E-03	2.38E-04	7.854	0.785	0.0608	0.0061	343.1	0.53
C12	2.01E-03	2.01E-04	6.650	0.665	0.0515	0.0051	339.1	0.41
C13	2.25E-03	2.25E-04	7.426	0.743	0.0575	0.0057	346.2	0.30
C14	2.23E-03	2.23E-04	7.374	0.738	0.0571	0.0057	344.7	0.33
C15	2.37E-03	2.38E-04	7.826	0.787	0.0605	0.0061	349.6	0.21
C16	2.72E-03	2.75E-04	8.990	0.909	0.0696	0.0070	356.5	0.27
C17	3.20E-03	3.22E-04	10.583	1.065	0.0819	0.0082	363.8	0.35
C18	3.78E-03	3.78E-04	12.487	1.250	0.0966	0.0097	371.2	0.60
C19	4.06E-03	4.07E-04	13.429	1.344	0.1039	0.0104	375.4	0.81
D02	3.96E-03	3.96E-04	13.087	1.309	0.1013	0.0101	372.5	0.67
D03	3.82E-03	3.82E-04	12.623	1.262	0.0977	0.0098	368.3	0.69
D04	3.72E-03	3.72E-04	12.293	1.229	0.0951	0.0095	365.5	0.71
D13	2.06E-03	2.06E-04	6.801	0.681	0.0526	0.0053	342.5	0.25
D14	2.27E-03	2.27E-04	7.487	0.752	0.0579	0.0058	347.1	0.28
E03	3.89E-03	3.89E-04	12.857	1.286	0.0995	0.0099	371.5	0.65
F20	2.00E-04	2.03E-05	0.660	0.067	0.0051	0.0005	297.6	0.00
F21	1.50E-04	1.52E-05	0.496	0.050	0.0038	0.0004	296.0	0.09
F22	2.19E-04	2.20E-05	0.723	0.073	0.0056	0.0006	298.4	0.09
F23	1.02E-04	1.05E-05	0.338	0.035	0.0026	0.0003	297.7	0.09
F24	6.89E-05	6.90E-06	0.228	0.023	0.0018	0.0002	296.7	0.00
F25	5.93E-05	5.94E-06	0.196	0.020	0.0015	0.0002	296.8	0.00

Table C - 65. Run 3030 data, Mach 8 nozzle, $Re_\infty = 21.5\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.05E-03	4.05E-04	13.292	1.329	0.1032	0.0103	379.3	0.54
B02	4.10E-03	4.10E-04	13.460	1.347	0.1046	0.0105	382.9	0.50
B03	3.97E-03	3.97E-04	13.020	1.302	0.1011	0.0101	377.4	0.54
B04	3.94E-03	3.94E-04	12.940	1.294	0.1005	0.0101	374.7	0.56
B13	2.29E-03	2.29E-04	7.519	0.752	0.0584	0.0058	348.9	0.34
B14	2.21E-03	2.21E-04	7.242	0.724	0.0562	0.0056	351.3	0.25
C01	3.79E-03	3.79E-04	12.441	1.245	0.0966	0.0097	381.5	0.46
C02	4.04E-03	4.04E-04	13.266	1.327	0.1030	0.0103	382.0	0.46
C03	3.84E-03	3.84E-04	12.604	1.261	0.0979	0.0098	376.5	0.47
C04	3.70E-03	3.70E-04	12.136	1.214	0.0943	0.0094	371.3	0.51
C05	3.53E-03	3.53E-04	11.594	1.159	0.0901	0.0090	365.8	0.52
C06	3.55E-03	3.55E-04	11.663	1.167	0.0906	0.0091	361.8	0.65
C07	3.38E-03	3.39E-04	11.108	1.114	0.0863	0.0087	355.4	0.75
C08	2.93E-03	3.00E-04	9.617	0.984	0.0747	0.0076	348.6	0.83
C09	2.30E-03	2.32E-04	7.536	0.762	0.0585	0.0059	348.6	0.45
C10	2.12E-03	2.12E-04	6.959	0.696	0.0541	0.0054	349.6	0.22
C11	2.21E-03	2.22E-04	7.251	0.728	0.0563	0.0057	347.3	0.19
C12	2.12E-03	2.12E-04	6.970	0.697	0.0541	0.0054	343.8	0.39
C13	2.34E-03	2.34E-04	7.685	0.769	0.0597	0.0060	350.3	0.37
C14	2.38E-03	2.39E-04	7.811	0.783	0.0607	0.0061	349.2	0.42
C15	2.27E-03	2.27E-04	7.463	0.746	0.0580	0.0058	352.4	0.27
C16	2.41E-03	2.41E-04	7.902	0.792	0.0614	0.0062	358.5	0.16
C17	2.76E-03	2.78E-04	9.056	0.913	0.0703	0.0071	366.2	0.00
C18	3.44E-03	3.47E-04	11.308	1.138	0.0878	0.0088	375.8	0.22
C19	3.95E-03	3.97E-04	12.962	1.302	0.1007	0.0101	382.6	0.39
D02	3.85E-03	3.86E-04	12.649	1.266	0.0982	0.0098	378.9	0.45
D03	3.74E-03	3.74E-04	12.279	1.229	0.0954	0.0095	375.0	0.47
D04	3.71E-03	3.71E-04	12.172	1.218	0.0945	0.0095	372.6	0.50
D13	2.07E-03	2.07E-04	6.803	0.681	0.0528	0.0053	345.8	0.32
D14	2.24E-03	2.24E-04	7.341	0.734	0.0570	0.0057	350.3	0.30
E03	3.75E-03	3.76E-04	12.320	1.234	0.0957	0.0096	377.6	0.40
F20	1.89E-04	1.92E-05	0.621	0.063	0.0048	0.0005	298.3	0.00
F21	1.43E-04	1.44E-05	0.470	0.047	0.0036	0.0004	296.6	0.00
F22	1.47E-04	1.53E-05	0.482	0.050	0.0037	0.0004	298.7	0.00
F23	1.24E-04	1.25E-05	0.406	0.041	0.0032	0.0003	298.1	0.11
F24	6.16E-05	6.24E-06	0.202	0.020	0.0016	0.0002	296.8	0.00
F25	5.60E-05	5.61E-06	0.184	0.018	0.0014	0.0001	296.9	0.11

Table C - 66. Run 3030 data, Mach 8 nozzle, $Re_\infty = 21.5\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.95E-03	3.95E-04	12.938	1.294	0.1006	0.0101	385.0	0.46
B02	3.94E-03	3.94E-04	12.909	1.292	0.1004	0.0100	388.0	0.42
B03	3.86E-03	3.86E-04	12.640	1.265	0.0983	0.0098	383.0	0.40
B04	3.89E-03	3.89E-04	12.731	1.274	0.0990	0.0099	380.8	0.51
B13	2.25E-03	2.25E-04	7.377	0.739	0.0574	0.0057	352.3	0.25
B14	2.20E-03	2.20E-04	7.212	0.721	0.0561	0.0056	354.0	0.25
C01	3.60E-03	3.60E-04	11.782	1.180	0.0916	0.0092	386.0	0.32
C02	3.87E-03	3.88E-04	12.692	1.270	0.0987	0.0099	386.9	0.37
C03	3.72E-03	3.73E-04	12.202	1.221	0.0949	0.0095	381.7	0.42
C04	3.64E-03	3.64E-04	11.941	1.194	0.0929	0.0093	376.9	0.45
C05	3.54E-03	3.54E-04	11.603	1.160	0.0902	0.0090	371.9	0.49
C06	3.64E-03	3.64E-04	11.929	1.193	0.0928	0.0093	369.0	0.59
C07	3.64E-03	3.65E-04	11.936	1.195	0.0928	0.0093	364.1	0.72
C08	3.73E-03	3.78E-04	12.229	1.239	0.0951	0.0096	359.9	1.04
C09	3.24E-03	3.45E-04	10.630	1.130	0.0827	0.0088	357.8	1.13
C10	2.39E-03	2.47E-04	7.828	0.809	0.0609	0.0063	353.8	0.60
C11	2.12E-03	2.12E-04	6.962	0.696	0.0541	0.0054	350.3	0.32
C12	2.12E-03	2.12E-04	6.954	0.695	0.0541	0.0054	347.7	0.37
C13	2.41E-03	2.41E-04	7.894	0.790	0.0614	0.0061	354.6	0.34
C14	2.55E-03	2.55E-04	8.368	0.837	0.0651	0.0065	354.3	0.43
C15	2.36E-03	2.36E-04	7.719	0.772	0.0600	0.0060	355.9	0.35
C16	2.28E-03	2.28E-04	7.470	0.747	0.0581	0.0058	360.4	0.25
C17	2.41E-03	2.42E-04	7.906	0.794	0.0615	0.0062	367.1	0.00
C18	2.93E-03	2.97E-04	9.600	0.972	0.0746	0.0076	377.3	0.16
C19	3.39E-03	3.44E-04	11.119	1.126	0.0865	0.0088	385.6	0.19
D02	3.65E-03	3.65E-04	11.962	1.198	0.0930	0.0093	383.3	0.37
D03	3.58E-03	3.58E-04	11.731	1.174	0.0912	0.0091	379.7	0.39
D04	3.61E-03	3.61E-04	11.838	1.184	0.0920	0.0092	377.8	0.40
D13	2.13E-03	2.13E-04	6.985	0.699	0.0543	0.0054	349.3	0.32
D14	2.26E-03	2.26E-04	7.420	0.742	0.0577	0.0058	353.7	0.22
E03	3.56E-03	3.56E-04	11.671	1.168	0.0907	0.0091	381.8	0.34
F20	1.41E-04	1.48E-05	0.464	0.048	0.0036	0.0004	298.5	0.00
F21	1.32E-04	1.32E-05	0.432	0.043	0.0034	0.0003	296.8	0.11
F22	1.50E-04	1.53E-05	0.490	0.050	0.0038	0.0004	298.8	0.00
F23	1.52E-04	1.55E-05	0.498	0.051	0.0039	0.0004	298.5	0.00
F24	6.38E-05	6.67E-06	0.209	0.022	0.0016	0.0002	296.9	0.11
F25	5.91E-05	6.04E-06	0.194	0.020	0.0015	0.0002	297.0	0.00

Table C - 67. Run 3030 data, Mach 8 nozzle, $Re_\infty = 21.5\times10^6$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.81E-03	3.81E-04	12.443	1.245	0.0969	0.0097	389.6	0.37
B02	3.76E-03	3.77E-04	12.307	1.232	0.0958	0.0096	392.0	0.34
B03	3.73E-03	3.73E-04	12.203	1.221	0.0950	0.0095	387.6	0.40
B04	3.78E-03	3.78E-04	12.350	1.235	0.0962	0.0096	385.9	0.43
B13	2.11E-03	2.12E-04	6.912	0.692	0.0538	0.0054	354.7	0.22
B14	2.17E-03	2.17E-04	7.106	0.711	0.0553	0.0055	356.8	0.22
C01	3.39E-03	3.39E-04	11.077	1.109	0.0862	0.0086	389.4	0.25
C02	3.70E-03	3.70E-04	12.100	1.211	0.0942	0.0094	390.8	0.27
C03	3.60E-03	3.60E-04	11.773	1.178	0.0917	0.0092	386.1	0.37
C04	3.60E-03	3.60E-04	11.759	1.176	0.0916	0.0092	381.9	0.46
C05	3.55E-03	3.55E-04	11.616	1.162	0.0904	0.0090	377.5	0.49
C06	3.73E-03	3.73E-04	12.197	1.220	0.0950	0.0095	375.8	0.59
C07	3.82E-03	3.82E-04	12.474	1.248	0.0971	0.0097	372.1	0.70
C08	4.19E-03	4.19E-04	13.699	1.371	0.1067	0.0107	371.2	0.92
C09	4.44E-03	4.50E-04	14.522	1.472	0.1131	0.0115	372.4	1.33
C10	3.41E-03	3.58E-04	11.161	1.170	0.0869	0.0091	363.8	1.17
C11	2.32E-03	2.34E-04	7.581	0.766	0.0590	0.0060	354.4	0.51
C12	2.20E-03	2.20E-04	7.177	0.720	0.0559	0.0056	351.6	0.37
C13	2.37E-03	2.37E-04	7.734	0.773	0.0602	0.0060	358.0	0.34
C14	2.42E-03	2.44E-04	7.923	0.796	0.0617	0.0062	358.0	0.22
C15	2.44E-03	2.44E-04	7.969	0.797	0.0620	0.0062	359.7	0.35
C16	2.28E-03	2.29E-04	7.470	0.748	0.0582	0.0058	362.7	0.25
C17	2.23E-03	2.23E-04	7.281	0.729	0.0567	0.0057	367.9	0.00
C18	2.48E-03	2.49E-04	8.101	0.816	0.0631	0.0064	377.2	0.11
C19	2.81E-03	2.85E-04	9.202	0.931	0.0717	0.0072	385.9	0.11
D02	3.49E-03	3.49E-04	11.403	1.141	0.0888	0.0089	386.9	0.30
D03	3.48E-03	3.48E-04	11.372	1.138	0.0885	0.0089	383.8	0.40
D04	3.55E-03	3.55E-04	11.622	1.162	0.0905	0.0090	382.5	0.39
D13	2.17E-03	2.17E-04	7.093	0.710	0.0552	0.0055	352.7	0.34
D14	2.19E-03	2.19E-04	7.169	0.718	0.0558	0.0056	356.5	0.22
E03	3.45E-03	3.45E-04	11.274	1.128	0.0878	0.0088	385.6	0.32
F20	1.23E-04	1.25E-05	0.403	0.041	0.0031	0.0003	298.5	0.00
F21	1.37E-04	1.39E-05	0.450	0.045	0.0035	0.0004	297.1	0.11
F22	1.59E-04	1.60E-05	0.519	0.052	0.0040	0.0004	299.2	0.16
F23	1.86E-04	1.89E-05	0.609	0.062	0.0047	0.0005	299.1	0.11
F24	9.64E-05	1.00E-05	0.315	0.033	0.0025	0.0003	297.2	0.00
F25	7.86E-05	7.99E-06	0.257	0.026	0.0020	0.0002	297.2	0.11

Table C - 68. Run 3030 data, Mach 8 nozzle, $Re_\infty = 21.5\times10^6$/ft, α = 20°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.67E-03	3.67E-04	11.980	1.199	0.0933	0.0093	393.7	0.35
B02	3.59E-03	3.59E-04	11.710	1.172	0.0912	0.0091	395.5	0.32
B03	3.62E-03	3.62E-04	11.819	1.182	0.0921	0.0092	391.8	0.38
B04	3.71E-03	3.71E-04	12.099	1.210	0.0943	0.0094	390.6	0.50
B13	2.12E-03	2.13E-04	6.937	0.695	0.0541	0.0054	357.4	0.34
B14	2.16E-03	2.16E-04	7.066	0.707	0.0551	0.0055	359.6	0.29
C01	3.23E-03	3.23E-04	10.532	1.054	0.0821	0.0082	392.5	0.32
C02	3.56E-03	3.56E-04	11.618	1.162	0.0905	0.0091	394.4	0.38
C03	3.53E-03	3.53E-04	11.511	1.151	0.0897	0.0090	390.2	0.41
C04	3.55E-03	3.55E-04	11.597	1.160	0.0904	0.0090	386.7	0.52
C05	3.55E-03	3.55E-04	11.597	1.160	0.0904	0.0090	382.9	0.53
C06	3.78E-03	3.78E-04	12.333	1.233	0.0961	0.0096	382.3	0.64
C07	3.90E-03	3.90E-04	12.739	1.274	0.0993	0.0099	379.7	0.72
C08	4.26E-03	4.26E-04	13.914	1.391	0.1084	0.0108	380.6	0.84
C09	4.80E-03	4.80E-04	15.659	1.566	0.1220	0.0122	385.6	1.10
C10	4.45E-03	4.51E-04	14.539	1.473	0.1133	0.0115	378.2	1.44
C11	2.96E-03	3.07E-04	9.669	1.003	0.0753	0.0078	362.3	1.02
C12	2.56E-03	2.59E-04	8.346	0.847	0.0650	0.0066	357.6	0.71
C13	2.48E-03	2.49E-04	8.097	0.812	0.0631	0.0063	362.1	0.47
C14	2.17E-03	2.17E-04	7.077	0.710	0.0551	0.0055	359.9	0.10
C15	2.37E-03	2.38E-04	7.752	0.778	0.0604	0.0061	363.1	0.25
C16	2.45E-03	2.46E-04	8.016	0.804	0.0625	0.0063	366.5	0.42
C17	2.23E-03	2.23E-04	7.284	0.729	0.0568	0.0057	369.6	0.20
C18	2.33E-03	2.33E-04	7.622	0.762	0.0594	0.0059	377.5	0.14
C19	2.57E-03	2.57E-04	8.394	0.839	0.0654	0.0065	386.2	0.10
D02	3.38E-03	3.38E-04	11.022	1.103	0.0859	0.0086	390.3	0.32
D03	3.41E-03	3.41E-04	11.123	1.113	0.0867	0.0087	387.8	0.35
D04	3.54E-03	3.54E-04	11.568	1.157	0.0901	0.0090	387.3	0.50
D13	2.38E-03	2.40E-04	7.775	0.785	0.0606	0.0061	357.3	0.58
D14	2.11E-03	2.11E-04	6.886	0.689	0.0537	0.0054	358.9	0.25
E03	3.40E-03	3.40E-04	11.093	1.109	0.0864	0.0086	389.4	0.38
F20	1.57E-04	1.58E-05	0.513	0.052	0.0040	0.0004	298.9	0.10
F21	1.72E-04	1.75E-05	0.561	0.057	0.0044	0.0004	297.7	0.10
F22	1.48E-04	1.50E-05	0.483	0.049	0.0038	0.0004	299.4	0.00
F23	2.44E-04	2.56E-05	0.797	0.083	0.0062	0.0007	300.0	0.14
F24	1.07E-04	1.07E-05	0.348	0.035	0.0027	0.0003	297.6	0.14
F25	7.24E-05	7.70E-06	0.236	0.025	0.0018	0.0002	297.4	0.10

Table C - 69. Run 3030 data, Mach 8 nozzle, $Re_\infty = 21.5\times10^6$/ft, α = 24°.

Gauge	St	ΔSt	St×(ReD)^(1/2)	ΔSt×(ReD)^(1/2)	St×(ReD)^(1/5)	ΔSt×(ReD)^(1/5)	Tw (K)	ΔTw (K)
A03	3.55E-03	3.55E-04	11.522	1.153	0.0901	0.0090	398.5	0.47
B02	3.44E-03	3.45E-04	11.186	1.120	0.0874	0.0088	399.6	0.40
B03	3.52E-03	3.52E-04	11.424	1.143	0.0893	0.0089	396.7	0.48
B04	3.63E-03	3.63E-04	11.791	1.180	0.0922	0.0092	396.3	0.56
B13	2.36E-03	2.38E-04	7.678	0.772	0.0600	0.0060	362.7	0.63
B14	2.17E-03	2.17E-04	7.062	0.706	0.0552	0.0055	363.3	0.33
C01	3.13E-03	3.13E-04	10.156	1.016	0.0794	0.0079	396.5	0.40
C02	3.49E-03	3.49E-04	11.333	1.134	0.0886	0.0089	399.0	0.50
C03	3.47E-03	3.47E-04	11.267	1.127	0.0881	0.0088	395.4	0.48
C04	3.53E-03	3.53E-04	11.466	1.147	0.0896	0.0090	392.6	0.56
C05	3.55E-03	3.55E-04	11.521	1.152	0.0901	0.0090	389.4	0.64
C06	3.79E-03	3.79E-04	12.316	1.232	0.0963	0.0096	389.9	0.73
C07	3.91E-03	3.91E-04	12.692	1.269	0.0992	0.0099	388.2	0.78
C08	4.17E-03	4.17E-04	13.549	1.356	0.1059	0.0106	390.0	0.85
C09	4.57E-03	4.58E-04	14.850	1.488	0.1161	0.0116	396.8	0.94
C10	4.80E-03	4.80E-04	15.574	1.558	0.1218	0.0122	393.8	1.27
C11	3.64E-03	3.64E-04	11.819	1.183	0.0924	0.0092	375.3	1.17
C12	2.95E-03	2.95E-04	9.572	0.958	0.0748	0.0075	367.0	0.87
C13	2.64E-03	2.65E-04	8.588	0.859	0.0671	0.0067	368.2	0.61
C14	2.11E-03	2.11E-04	6.852	0.685	0.0536	0.0054	362.6	0.28
C15	2.14E-03	2.15E-04	6.955	0.698	0.0544	0.0055	365.6	0.28
C16	2.45E-03	2.46E-04	7.953	0.799	0.0622	0.0062	371.1	0.38
C17	2.38E-03	2.39E-04	7.729	0.774	0.0604	0.0061	373.4	0.45
C18	2.46E-03	2.46E-04	7.974	0.798	0.0623	0.0062	380.4	0.35
C19	2.72E-03	2.72E-04	8.819	0.883	0.0689	0.0069	389.6	0.43
D02	3.32E-03	3.32E-04	10.777	1.078	0.0843	0.0084	394.8	0.48
D03	3.35E-03	3.35E-04	10.888	1.089	0.0851	0.0085	392.7	0.48
D04	3.53E-03	3.53E-04	11.458	1.146	0.0896	0.0090	393.2	0.57
D13	2.84E-03	2.86E-04	9.223	0.929	0.0721	0.0073	365.6	0.88
D14	2.13E-03	2.13E-04	6.922	0.693	0.0541	0.0054	362.3	0.40
E03	3.36E-03	3.36E-04	10.923	1.093	0.0854	0.0085	394.4	0.48
F20	1.43E-04	1.43E-05	0.465	0.046	0.0036	0.0004	299.3	0.00
F21	2.14E-04	2.23E-05	0.696	0.072	0.0054	0.0006	298.6	0.00
F22	2.05E-04	2.10E-05	0.666	0.068	0.0052	0.0005	300.2	0.09
F23	2.99E-04	3.00E-05	0.972	0.097	0.0076	0.0008	301.4	0.13
F24	9.90E-05	1.01E-05	0.321	0.033	0.0025	0.0003	297.9	0.00
F25	6.51E-05	7.64E-06	0.211	0.025	0.0017	0.0002	297.4	0.13

Table C - 70. Run 3051 data, Mach 8 nozzle, $Re_\infty = 21.8\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.62E-03	3.63E-04	12.006	1.206	0.0927	0.0093	372.8	2.12
B02	3.62E-03	3.62E-04	12.006	1.202	0.0927	0.0093	372.1	2.23
B03	3.79E-03	3.82E-04	12.556	1.265	0.0969	0.0098	376.6	2.29
B04	3.34E-03	3.35E-04	11.090	1.110	0.0856	0.0086	367.9	2.03
B13	2.18E-03	2.18E-04	7.217	0.722	0.0557	0.0056	343.8	1.56
B14	2.16E-03	2.16E-04	7.165	0.717	0.0553	0.0055	344.4	1.47
C01	3.67E-03	3.68E-04	12.188	1.219	0.0941	0.0094	375.9	2.37
C02	3.66E-03	3.66E-04	12.135	1.214	0.0937	0.0094	372.8	2.29
C03	3.51E-03	3.51E-04	11.627	1.163	0.0897	0.0090	369.7	2.24
C04	3.28E-03	3.28E-04	10.862	1.087	0.0838	0.0084	365.8	2.12
C05	3.44E-03	3.44E-04	11.401	1.141	0.0880	0.0088	370.5	2.10
C06	3.27E-03	3.27E-04	10.854	1.086	0.0838	0.0084	366.2	2.08
C07	3.09E-03	3.10E-04	10.256	1.028	0.0792	0.0079	363.0	1.92
C08	2.82E-03	2.86E-04	9.360	0.951	0.0722	0.0073	358.5	1.60
C09	2.45E-03	2.57E-04	8.125	0.857	0.0627	0.0066	354.7	1.20
C10	2.23E-03	2.28E-04	7.408	0.759	0.0572	0.0058	349.2	1.25
C11	2.17E-03	2.19E-04	7.182	0.728	0.0554	0.0056	346.9	1.36
C12	2.20E-03	2.28E-04	7.286	0.758	0.0562	0.0058	347.7	1.25
C13	2.35E-03	2.36E-04	7.807	0.782	0.0603	0.0060	346.6	1.68
C14	2.15E-03	2.15E-04	7.122	0.713	0.0550	0.0055	342.6	1.62
C15	2.16E-03	2.16E-04	7.148	0.715	0.0552	0.0055	344.1	1.46
C16	2.50E-03	2.54E-04	8.297	0.846	0.0640	0.0065	352.4	1.42
C17	3.02E-03	3.06E-04	10.027	1.017	0.0774	0.0078	361.0	1.78
C18	3.64E-03	3.68E-04	12.072	1.222	0.0932	0.0094	372.2	2.10
C19	4.01E-03	4.04E-04	13.306	1.344	0.1027	0.0104	382.6	2.28
D02	4.57E-03	4.57E-04	15.150	1.515	0.1170	0.0117	390.1	2.67
D03	3.43E-03	3.43E-04	11.372	1.137	0.0878	0.0088	368.1	2.24
D04	3.40E-03	3.40E-04	11.268	1.127	0.0870	0.0087	367.9	2.19
D13	2.15E-03	2.17E-04	7.120	0.723	0.0550	0.0056	343.6	1.34
D14	2.16E-03	2.17E-04	7.172	0.720	0.0554	0.0056	343.8	1.45
E03	3.59E-03	3.59E-04	11.897	1.191	0.0918	0.0092	371.4	2.23
F20	1.88E-04	1.88E-05	0.624	0.062	0.0048	0.0005	301.5	0.09
F21	1.40E-04	1.40E-05	0.464	0.046	0.0036	0.0004	300.5	0.00
F22	1.43E-04	1.45E-05	0.476	0.048	0.0037	0.0004	300.6	0.15
F23	1.08E-04	1.09E-05	0.359	0.036	0.0028	0.0003	299.8	0.09
F24	6.93E-05	6.99E-06	0.230	0.023	0.0018	0.0002	298.8	0.13
F25	6.86E-05	7.14E-06	0.228	0.024	0.0018	0.0002	298.9	0.09

Table C - 71. Run 3051 data, Mach 8 nozzle, $Re_\infty = 21.8\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.56E-03	3.56E-04	11.778	1.178	0.0911	0.0091	384.9	0.61
B02	3.56E-03	3.56E-04	11.762	1.177	0.0910	0.0091	384.6	0.59
B03	3.13E-03	3.17E-04	10.337	1.049	0.0799	0.0081	386.6	0.00
B04	3.43E-03	3.44E-04	11.355	1.136	0.0878	0.0088	380.3	0.63
B13	2.06E-03	2.06E-04	6.818	0.682	0.0527	0.0053	351.6	0.35
B14	1.99E-03	1.99E-04	6.581	0.659	0.0509	0.0051	351.6	0.31
C01	3.56E-03	3.56E-04	11.762	1.177	0.0910	0.0091	388.6	0.63
C02	3.63E-03	3.63E-04	12.001	1.200	0.0928	0.0093	385.6	0.61
C03	3.56E-03	3.56E-04	11.764	1.176	0.0910	0.0091	382.7	0.64
C04	3.40E-03	3.40E-04	11.253	1.126	0.0870	0.0087	378.7	0.68
C05	3.70E-03	3.70E-04	12.233	1.225	0.0946	0.0095	384.3	0.77
C06	3.61E-03	3.62E-04	11.939	1.196	0.0923	0.0092	380.5	0.80
C07	3.54E-03	3.55E-04	11.692	1.172	0.0904	0.0091	377.3	0.86
C08	3.65E-03	3.70E-04	12.081	1.221	0.0934	0.0095	374.3	1.13
C09	4.12E-03	4.47E-04	13.612	1.475	0.1053	0.0114	373.6	1.93
C10	3.07E-03	3.44E-04	10.166	1.133	0.0786	0.0088	362.2	1.45
C11	2.16E-03	2.16E-04	7.145	0.715	0.0553	0.0055	355.1	0.43
C12	2.00E-03	2.01E-04	6.625	0.663	0.0512	0.0051	354.5	0.31
C13	2.24E-03	2.24E-04	7.403	0.743	0.0573	0.0057	355.4	0.35
C14	2.23E-03	2.23E-04	7.366	0.737	0.0570	0.0057	352.0	0.48
C15	2.02E-03	2.03E-04	6.695	0.670	0.0518	0.0052	351.4	0.40
C16	2.01E-03	2.02E-04	6.638	0.667	0.0513	0.0052	357.5	0.13
C17	2.30E-03	2.33E-04	7.599	0.771	0.0588	0.0060	366.6	0.00
C18	2.76E-03	2.85E-04	9.128	0.943	0.0706	0.0073	379.1	0.13
C19	3.13E-03	3.24E-04	10.347	1.072	0.0800	0.0083	390.9	0.18
D02	4.40E-03	4.40E-04	14.534	1.454	0.1124	0.0112	404.2	0.60
D03	3.48E-03	3.48E-04	11.496	1.150	0.0889	0.0089	381.0	0.61
D04	3.50E-03	3.50E-04	11.571	1.158	0.0895	0.0090	380.9	0.70
D13	2.04E-03	2.04E-04	6.743	0.675	0.0522	0.0052	351.0	0.33
D14	2.03E-03	2.03E-04	6.712	0.672	0.0519	0.0052	351.3	0.31
E03	3.59E-03	3.59E-04	11.870	1.187	0.0918	0.0092	384.3	0.60
F20	1.62E-04	1.63E-05	0.537	0.054	0.0041	0.0004	302.2	0.13
F21	1.55E-04	1.57E-05	0.514	0.052	0.0040	0.0004	301.2	0.13
F22	1.27E-04	1.28E-05	0.419	0.042	0.0032	0.0003	301.1	0.09
F23	1.12E-04	1.12E-05	0.370	0.037	0.0029	0.0003	300.4	0.09
F24	8.32E-05	8.35E-06	0.275	0.028	0.0021	0.0002	299.3	0.09
F25	7.69E-05	7.69E-06	0.254	0.025	0.0020	0.0002	299.3	0.09

Table C - 72. Run 3051 data, Mach 8 nozzle, $Re_\infty = 21.8\times10^6$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.59E-03	3.59E-04	11.813	1.181	0.0916	0.0092	391.2	0.55
B02	3.51E-03	3.51E-04	11.557	1.156	0.0896	0.0090	390.4	0.46
B03	3.69E-03	3.74E-04	12.132	1.232	0.0941	0.0096	392.8	0.83
B04	3.53E-03	3.53E-04	11.628	1.163	0.0902	0.0090	387.3	0.57
B13	2.07E-03	2.07E-04	6.801	0.680	0.0527	0.0053	355.5	0.33
B14	1.93E-03	1.93E-04	6.367	0.637	0.0494	0.0049	354.6	0.28
C01	3.46E-03	3.46E-04	11.385	1.139	0.0883	0.0088	394.3	0.44
C02	3.58E-03	3.58E-04	11.795	1.180	0.0915	0.0091	391.7	0.50
C03	3.58E-03	3.58E-04	11.783	1.178	0.0914	0.0091	389.3	0.55
C04	3.48E-03	3.48E-04	11.465	1.147	0.0889	0.0089	385.6	0.60
C05	3.87E-03	3.87E-04	12.745	1.275	0.0988	0.0099	392.5	0.69
C06	3.81E-03	3.81E-04	12.534	1.254	0.0972	0.0097	388.9	0.71
C07	3.77E-03	3.77E-04	12.401	1.241	0.0962	0.0096	386.3	0.77
C08	4.00E-03	4.00E-04	13.154	1.317	0.1020	0.0102	385.4	0.89
C09	5.16E-03	5.17E-04	16.992	1.701	0.1318	0.0132	393.0	1.41
C10	4.67E-03	4.77E-04	15.362	1.569	0.1191	0.0122	381.2	1.71
C11	2.81E-03	3.06E-04	9.256	1.007	0.0718	0.0078	363.1	1.13
C12	2.03E-03	2.04E-04	6.672	0.671	0.0517	0.0052	358.1	0.39
C13	2.05E-03	2.05E-04	6.736	0.674	0.0522	0.0052	358.2	0.28
C14	2.17E-03	2.18E-04	7.149	0.717	0.0554	0.0056	356.4	0.31
C15	2.21E-03	2.22E-04	7.269	0.729	0.0564	0.0057	356.2	0.46
C16	2.01E-03	2.02E-04	6.625	0.665	0.0514	0.0052	360.0	0.30
C17	2.06E-03	2.06E-04	6.792	0.679	0.0527	0.0053	367.5	0.13
C18	2.25E-03	2.25E-04	7.399	0.742	0.0574	0.0058	378.5	0.13
C19	2.45E-03	2.46E-04	8.048	0.810	0.0624	0.0063	390.1	0.19
D02	4.26E-03	4.26E-04	14.013	1.402	0.1087	0.0109	410.3	0.46
D03	3.50E-03	3.50E-04	11.508	1.151	0.0892	0.0089	387.5	0.53
D04	3.58E-03	3.58E-04	11.781	1.178	0.0914	0.0091	388.0	0.57
D13	2.07E-03	2.08E-04	6.820	0.683	0.0529	0.0053	355.0	0.41
D14	1.99E-03	1.99E-04	6.541	0.654	0.0507	0.0051	354.7	0.25
E03	3.62E-03	3.62E-04	11.913	1.192	0.0924	0.0092	390.8	0.52
F20	1.35E-04	1.37E-05	0.443	0.045	0.0034	0.0004	302.3	0.13
F21	1.67E-04	1.67E-05	0.551	0.055	0.0043	0.0004	301.8	0.00
F22	2.16E-04	2.42E-05	0.711	0.080	0.0055	0.0006	302.0	0.16
F23	1.12E-04	1.12E-05	0.370	0.037	0.0029	0.0003	300.6	0.09
F24	8.59E-05	8.60E-06	0.283	0.028	0.0022	0.0002	299.6	0.09
F25	7.02E-05	7.26E-06	0.231	0.024	0.0018	0.0002	299.4	0.13

Table C - 73. Run 3052 data, Mach 8 nozzle, $Re_\infty = 21.9\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.90E-03	4.07E-04	13.114	1.407	0.1004	0.0106	358.7	12.85
B02	3.76E-03	3.88E-04	12.631	1.339	0.0967	0.0101	357.0	12.40
B03	4.07E-03	4.50E-04	13.687	1.570	0.1048	0.0117	362.5	12.60
B04	3.71E-03	3.90E-04	12.485	1.349	0.0956	0.0101	356.2	12.27
B13	2.10E-03	2.12E-04	7.072	0.724	0.0542	0.0055	332.2	7.71
B14	2.11E-03	2.17E-04	7.089	0.755	0.0543	0.0057	332.6	7.37
C01	3.75E-03	3.94E-04	12.620	1.373	0.0966	0.0103	358.9	12.44
C02	3.79E-03	3.92E-04	12.731	1.357	0.0975	0.0102	357.8	12.25
C03	3.71E-03	3.86E-04	12.469	1.336	0.0955	0.0100	356.3	12.07
C04	3.68E-03	3.85E-04	12.367	1.336	0.0947	0.0100	356.3	11.94
C06	3.69E-03	3.85E-04	12.395	1.333	0.0949	0.0100	355.9	12.16
C07	3.74E-03	3.91E-04	12.572	1.352	0.0963	0.0102	356.3	12.45
C08	4.03E-03	4.21E-04	13.540	1.456	0.1037	0.0109	359.5	13.61
C09	4.02E-03	4.68E-04	13.535	1.674	0.1036	0.0123	362.0	12.72
C10	3.11E-03	3.67E-04	10.469	1.307	0.0801	0.0097	348.2	10.44
C11	2.41E-03	2.50E-04	8.104	0.873	0.0621	0.0065	338.0	8.58
C12	2.17E-03	2.28E-04	7.308	0.786	0.0560	0.0059	334.0	8.14
C13	2.33E-03	2.35E-04	7.829	0.798	0.0600	0.0061	335.7	8.62
C14	2.04E-03	2.09E-04	6.852	0.708	0.0525	0.0054	331.6	7.34
C15	2.02E-03	2.05E-04	6.795	0.707	0.0520	0.0053	331.4	7.11
C16	2.22E-03	2.31E-04	7.457	0.808	0.0571	0.0060	334.5	7.59
C17	2.60E-03	2.69E-04	8.741	0.938	0.0669	0.0070	340.0	8.89
C18	3.58E-03	3.91E-04	12.046	1.386	0.0922	0.0103	354.2	11.40
C19	4.29E-03	5.29E-04	14.427	1.899	0.1104	0.0140	366.8	12.72
D02	4.70E-03	5.12E-04	15.799	1.797	0.1210	0.0134	371.8	13.81
D03	3.60E-03	3.70E-04	12.115	1.276	0.0928	0.0096	355.0	11.89
D04	3.65E-03	3.77E-04	12.271	1.305	0.0940	0.0098	355.8	11.94
D13	2.10E-03	2.10E-04	7.050	0.717	0.0540	0.0054	332.2	7.64
D14	2.05E-03	2.10E-04	6.892	0.725	0.0528	0.0054	331.3	7.33
E03	3.78E-03	3.90E-04	12.721	1.347	0.0974	0.0101	357.4	12.45
F20	1.42E-04	1.52E-05	0.476	0.050	0.0036	0.0004	299.7	0.62
F21	1.38E-04	1.52E-05	0.463	0.050	0.0035	0.0004	299.6	0.59
F22	1.29E-04	1.36E-05	0.433	0.044	0.0033	0.0003	299.4	0.55
F23	1.12E-04	1.13E-05	0.376	0.038	0.0029	0.0003	299.1	0.44
F24	6.56E-05	7.51E-06	0.220	0.025	0.0017	0.0002	298.3	0.31
F25	6.03E-05	7.31E-06	0.203	0.024	0.0016	0.0002	298.2	0.31

Table C - 74. Run 3052 data, Mach 8 nozzle, $Re_\infty = 21.9\times10^6$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.61E-03	3.61E-04	11.932	1.193	0.0923	0.0092	387.5	0.61
B02	3.51E-03	3.51E-04	11.612	1.161	0.0898	0.0090	385.2	0.60
B03	3.74E-03	3.74E-04	12.371	1.237	0.0957	0.0096	391.0	0.64
B04	3.54E-03	3.54E-04	11.700	1.170	0.0905	0.0090	384.4	0.66
B13	2.04E-03	2.04E-04	6.747	0.675	0.0522	0.0052	350.8	0.38
B14	2.01E-03	2.01E-04	6.631	0.664	0.0513	0.0051	350.6	0.33
C01	3.47E-03	3.47E-04	11.464	1.147	0.0887	0.0089	387.6	0.57
C02	3.58E-03	3.58E-04	11.850	1.185	0.0916	0.0092	386.4	0.61
C03	3.56E-03	3.56E-04	11.784	1.178	0.0911	0.0091	384.8	0.64
C04	3.57E-03	3.57E-04	11.802	1.180	0.0913	0.0091	384.8	0.68
C06	3.71E-03	3.71E-04	12.259	1.227	0.0948	0.0095	385.6	0.77
C07	3.76E-03	3.76E-04	12.423	1.243	0.0961	0.0096	386.6	0.80
C08	4.13E-03	4.14E-04	13.656	1.367	0.1056	0.0106	392.8	0.88
C09	4.86E-03	4.87E-04	16.068	1.609	0.1243	0.0124	400.8	1.24
C10	4.32E-03	4.42E-04	14.288	1.461	0.1105	0.0113	383.8	1.53
C11	3.10E-03	3.20E-04	10.253	1.058	0.0793	0.0082	364.8	1.13
C12	2.07E-03	2.08E-04	6.855	0.687	0.0530	0.0053	352.9	0.47
C13	2.05E-03	2.05E-04	6.768	0.678	0.0523	0.0052	354.5	0.33
C14	2.18E-03	2.19E-04	7.217	0.725	0.0558	0.0056	352.0	0.33
C15	2.04E-03	2.05E-04	6.758	0.678	0.0523	0.0052	349.4	0.50
C16	2.00E-03	2.00E-04	6.611	0.661	0.0511	0.0051	351.7	0.40
C17	2.04E-03	2.04E-04	6.733	0.675	0.0521	0.0052	357.6	0.18
C18	2.39E-03	2.45E-04	7.916	0.811	0.0612	0.0063	374.2	0.13
C19	2.76E-03	2.86E-04	9.116	0.948	0.0705	0.0073	389.1	0.13
D02	4.27E-03	4.27E-04	14.123	1.413	0.1092	0.0109	403.4	0.65
D03	3.48E-03	3.48E-04	11.513	1.151	0.0890	0.0089	383.2	0.64
D04	3.57E-03	3.57E-04	11.799	1.180	0.0912	0.0091	384.4	0.67
D13	2.07E-03	2.07E-04	6.835	0.684	0.0529	0.0053	350.9	0.41
D14	1.97E-03	1.97E-04	6.513	0.652	0.0504	0.0050	349.0	0.33
E03	3.77E-03	3.77E-04	12.468	1.247	0.0964	0.0096	387.3	0.75
F20	1.36E-04	1.37E-05	0.451	0.045	0.0035	0.0004	301.2	0.13
F21	1.63E-04	1.63E-05	0.537	0.054	0.0042	0.0004	301.3	0.09
F22	2.30E-04	2.53E-05	0.759	0.083	0.0059	0.0006	301.5	0.13
F23	1.11E-04	1.11E-05	0.368	0.037	0.0028	0.0003	300.3	0.09
F24	8.73E-05	8.73E-06	0.289	0.029	0.0022	0.0002	299.2	0.15
F25	7.33E-05	7.56E-06	0.242	0.025	0.0019	0.0002	299.0	0.00

Table C - 75. Run 3052 data, Mach 8 nozzle, $Re_\infty = 21.9\times10^6$/ft, α = 20°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.60E-03	3.60E-04	11.874	1.187	0.0919	0.0092	394.0	0.57
B02	3.42E-03	3.42E-04	11.291	1.129	0.0874	0.0087	391.1	0.50
B03	3.79E-03	3.79E-04	12.499	1.252	0.0967	0.0097	397.9	0.68
B04	3.56E-03	3.56E-04	11.755	1.176	0.0910	0.0091	391.4	0.60
B13	2.10E-03	2.10E-04	6.930	0.695	0.0536	0.0054	355.4	0.45
B14	1.95E-03	1.95E-04	6.432	0.643	0.0498	0.0050	354.2	0.33
C01	3.33E-03	3.34E-04	11.006	1.101	0.0852	0.0085	393.4	0.50
C02	3.51E-03	3.51E-04	11.582	1.158	0.0896	0.0090	392.6	0.52
C03	3.54E-03	3.54E-04	11.703	1.170	0.0906	0.0091	391.4	0.57
C04	3.62E-03	3.63E-04	11.964	1.197	0.0926	0.0093	392.1	0.60
C06	3.80E-03	3.81E-04	12.562	1.256	0.0972	0.0097	393.8	0.72
C07	3.86E-03	3.86E-04	12.753	1.275	0.0987	0.0099	394.9	0.67
C08	4.24E-03	4.24E-04	14.005	1.401	0.1084	0.0108	402.1	0.75
C09	4.93E-03	4.93E-04	16.260	1.626	0.1259	0.0126	412.7	0.91
C10	4.89E-03	4.89E-04	16.154	1.616	0.1250	0.0125	399.6	1.25
C11	4.20E-03	4.30E-04	13.851	1.420	0.1072	0.0110	380.5	1.59
C12	2.60E-03	2.73E-04	8.593	0.904	0.0665	0.0070	360.8	1.03
C13	2.00E-03	2.00E-04	6.597	0.660	0.0511	0.0051	357.8	0.31
C14	1.94E-03	1.95E-04	6.404	0.643	0.0496	0.0050	355.0	0.22
C15	2.17E-03	2.17E-04	7.162	0.717	0.0554	0.0055	355.0	0.45
C16	2.06E-03	2.06E-04	6.789	0.680	0.0525	0.0053	356.0	0.41
C17	1.98E-03	1.98E-04	6.546	0.655	0.0507	0.0051	360.2	0.25
C18	2.12E-03	2.12E-04	6.994	0.700	0.0541	0.0054	374.3	0.18
C19	2.28E-03	2.29E-04	7.540	0.754	0.0584	0.0058	388.2	0.13
D02	4.09E-03	4.09E-04	13.504	1.352	0.1045	0.0105	409.6	0.43
D03	3.50E-03	3.50E-04	11.541	1.154	0.0893	0.0089	389.9	0.57
D04	3.60E-03	3.60E-04	11.888	1.189	0.0920	0.0092	391.6	0.60
D13	2.33E-03	2.37E-04	7.703	0.783	0.0596	0.0061	356.9	0.71
D14	1.90E-03	1.90E-04	6.259	0.626	0.0485	0.0048	352.6	0.31
E03	3.67E-03	3.67E-04	12.109	1.211	0.0937	0.0094	394.2	0.54
F20	1.28E-04	1.28E-05	0.423	0.042	0.0033	0.0003	301.4	0.00
F21	1.69E-04	1.69E-05	0.558	0.056	0.0043	0.0004	301.8	0.09
F22	2.62E-04	2.64E-05	0.865	0.087	0.0067	0.0007	302.8	0.00
F23	1.44E-04	1.47E-05	0.476	0.049	0.0037	0.0004	300.8	0.00
F24	6.18E-05	6.56E-06	0.204	0.022	0.0016	0.0002	299.3	0.13
F25	3.43E-05	3.65E-06	0.113	0.012	0.0009	0.0001	298.9	0.13

Table C - 76. Run 3053 data, Mach 8 nozzle, $Re_\infty = 30.2\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.24E-03	3.24E-04	12.608	1.261	0.0883	0.0088	377.5	0.83
B02	3.51E-03	3.52E-04	13.696	1.370	0.0960	0.0096	384.8	0.82
B03	3.39E-03	3.40E-04	13.230	1.323	0.0927	0.0093	382.5	0.86
B04	3.04E-03	3.04E-04	11.842	1.185	0.0830	0.0083	372.8	0.83
B13	1.80E-03	1.80E-04	6.996	0.700	0.0490	0.0049	345.1	0.55
C01	3.31E-03	3.31E-04	12.899	1.291	0.0904	0.0090	385.4	0.73
C02	3.20E-03	3.20E-04	12.474	1.248	0.0874	0.0087	378.4	0.77
C03	3.11E-03	3.11E-04	12.132	1.213	0.0850	0.0085	375.5	0.80
C04	2.95E-03	2.95E-04	11.492	1.150	0.0805	0.0081	371.9	0.82
C05	3.20E-03	3.20E-04	12.457	1.248	0.0873	0.0087	376.3	0.94
C06	3.15E-03	3.16E-04	12.271	1.231	0.0860	0.0086	374.3	0.99
C07	3.10E-03	3.11E-04	12.095	1.212	0.0848	0.0085	373.3	0.96
C08	3.25E-03	3.27E-04	12.681	1.272	0.0889	0.0089	375.5	1.04
C10	3.65E-03	3.77E-04	14.218	1.468	0.0996	0.0103	371.7	1.81
C11	2.86E-03	3.11E-04	11.145	1.209	0.0781	0.0085	356.8	1.70
C12	1.81E-03	1.84E-04	7.047	0.715	0.0494	0.0050	344.2	0.73
C13	1.88E-03	1.88E-04	7.327	0.733	0.0513	0.0051	346.3	0.55
C14	1.85E-03	1.85E-04	7.196	0.722	0.0504	0.0051	345.3	0.62
C15	1.72E-03	1.72E-04	6.707	0.671	0.0470	0.0047	345.1	0.41
C16	1.87E-03	1.89E-04	7.276	0.736	0.0510	0.0052	351.8	0.26
C17	2.60E-03	2.71E-04	10.134	1.057	0.0710	0.0074	372.3	0.12
C18	3.32E-03	3.35E-04	12.954	1.305	0.0908	0.0091	383.6	0.54
C19	3.79E-03	3.80E-04	14.774	1.481	0.1035	0.0104	396.7	0.71
D02	3.76E-03	3.76E-04	14.639	1.465	0.1026	0.0103	391.8	0.81
D03	3.01E-03	3.01E-04	11.731	1.173	0.0822	0.0082	373.7	0.80
D04	3.03E-03	3.03E-04	11.792	1.179	0.0826	0.0083	373.4	0.80
D13	1.87E-03	1.88E-04	7.302	0.734	0.0512	0.0051	345.2	0.66
D14	1.75E-03	1.75E-04	6.833	0.683	0.0479	0.0048	344.6	0.49
E03	3.26E-03	3.27E-04	12.723	1.272	0.0892	0.0089	377.0	0.88
F20	1.27E-04	1.27E-05	0.494	0.049	0.0035	0.0003	302.0	0.08
F21	1.30E-04	1.30E-05	0.506	0.051	0.0035	0.0004	301.4	0.08
F22	1.08E-04	1.08E-05	0.420	0.042	0.0029	0.0003	301.1	0.08
F23	1.01E-04	1.01E-05	0.392	0.039	0.0027	0.0003	300.7	0.08
F24	4.90E-05	4.91E-06	0.191	0.019	0.0013	0.0001	299.6	0.08
F25	4.89E-05	4.94E-06	0.190	0.019	0.0013	0.0001	299.7	0.12

Table C - 77. Run 3053 data, Mach 8 nozzle, $Re_\infty = 30.2\times10^6$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.27E-03	3.27E-04	12.719	1.272	0.0893	0.0089	385.7	0.67
B02	3.43E-03	3.44E-04	13.349	1.336	0.0937	0.0094	392.4	0.58
B03	3.41E-03	3.41E-04	13.261	1.326	0.0931	0.0093	390.8	0.65
B04	3.12E-03	3.12E-04	12.119	1.212	0.0850	0.0085	381.2	0.69
B13	1.86E-03	1.86E-04	7.237	0.724	0.0508	0.0051	350.8	0.43
C01	3.19E-03	3.19E-04	12.399	1.241	0.0870	0.0087	392.2	0.53
C02	3.17E-03	3.17E-04	12.336	1.234	0.0866	0.0087	385.8	0.60
C03	3.14E-03	3.14E-04	12.193	1.219	0.0856	0.0086	383.4	0.64
C04	3.06E-03	3.06E-04	11.903	1.191	0.0835	0.0084	380.2	0.69
C05	3.41E-03	3.41E-04	13.253	1.326	0.0930	0.0093	386.2	0.81
C06	3.37E-03	3.38E-04	13.114	1.313	0.0920	0.0092	384.4	0.85
C07	3.35E-03	3.35E-04	13.007	1.302	0.0913	0.0091	383.4	0.86
C08	3.56E-03	3.56E-04	13.827	1.385	0.0970	0.0097	386.6	0.92
C10	4.32E-03	4.33E-04	16.794	1.684	0.1179	0.0118	389.6	1.40
C11	3.94E-03	3.98E-04	15.319	1.546	0.1075	0.0109	376.2	1.60
C12	2.37E-03	2.45E-04	9.203	0.950	0.0646	0.0067	354.3	1.07
C13	1.78E-03	1.78E-04	6.934	0.694	0.0487	0.0049	350.8	0.38
C14	1.88E-03	1.89E-04	7.328	0.736	0.0514	0.0052	351.2	0.39
C15	1.84E-03	1.84E-04	7.156	0.717	0.0502	0.0050	350.5	0.53
C16	1.70E-03	1.70E-04	6.592	0.660	0.0463	0.0046	354.3	0.21
C17	1.93E-03	1.98E-04	7.484	0.771	0.0525	0.0054	371.7	0.00
C18	2.65E-03	2.77E-04	10.308	1.077	0.0723	0.0076	386.2	0.19
C19	3.23E-03	3.35E-04	12.570	1.304	0.0882	0.0092	401.4	0.13
D02	3.67E-03	3.67E-04	14.266	1.427	0.1001	0.0100	399.5	0.58
D03	3.05E-03	3.05E-04	11.868	1.187	0.0833	0.0083	381.4	0.65
D04	3.11E-03	3.12E-04	12.107	1.211	0.0850	0.0085	381.7	0.71
D13	1.98E-03	1.98E-04	7.696	0.770	0.0540	0.0054	351.7	0.50
D14	1.74E-03	1.74E-04	6.747	0.676	0.0474	0.0047	349.3	0.35
E03	3.28E-03	3.28E-04	12.734	1.273	0.0894	0.0089	385.4	0.69
F20	1.15E-04	1.17E-05	0.449	0.046	0.0031	0.0003	302.2	0.13
F21	8.17E-05	8.38E-06	0.318	0.033	0.0022	0.0002	301.4	0.00
F22	1.72E-04	1.95E-05	0.667	0.076	0.0047	0.0005	302.0	0.09
F23	1.07E-04	1.07E-05	0.414	0.042	0.0029	0.0003	301.2	0.16
F24	6.27E-05	6.60E-06	0.244	0.026	0.0017	0.0002	299.8	0.00
F25	5.34E-05	5.38E-06	0.208	0.021	0.0015	0.0001	299.8	0.00

Table C - 78. Run 3053 data, Mach 8 nozzle, $Re_\infty = 30.2\times10^6$/ft, α = 20°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.26E-03	3.26E-04	12.595	1.260	0.0888	0.0089	394.2	0.85
B02	3.32E-03	3.32E-04	12.807	1.281	0.0903	0.0090	399.6	0.75
B03	3.29E-03	3.30E-04	12.712	1.273	0.0896	0.0090	398.4	0.74
B04	3.16E-03	3.16E-04	12.189	1.219	0.0859	0.0086	390.0	0.92
B13	2.19E-03	2.23E-04	8.437	0.858	0.0595	0.0061	358.8	1.04
C01	3.03E-03	3.04E-04	11.709	1.172	0.0825	0.0083	398.6	0.64
C02	3.10E-03	3.10E-04	11.963	1.197	0.0843	0.0084	393.2	0.75
C03	3.17E-03	3.17E-04	12.236	1.224	0.0862	0.0086	391.6	0.92
C04	3.12E-03	3.12E-04	12.030	1.203	0.0848	0.0085	389.0	0.92
C05	3.45E-03	3.45E-04	13.310	1.331	0.0938	0.0094	396.0	1.01
C06	3.48E-03	3.48E-04	13.429	1.343	0.0946	0.0095	394.9	1.04
C07	3.44E-03	3.44E-04	13.279	1.328	0.0936	0.0094	393.9	1.03
C08	3.65E-03	3.65E-04	14.083	1.408	0.0993	0.0099	397.8	1.12
C10	4.52E-03	4.52E-04	17.439	1.744	0.1229	0.0123	406.1	1.53
C11	4.31E-03	4.32E-04	16.652	1.666	0.1174	0.0117	394.8	1.77
C12	3.17E-03	3.21E-04	12.221	1.237	0.0861	0.0087	370.5	1.75
C13	2.00E-03	2.03E-04	7.726	0.783	0.0545	0.0055	357.3	0.89
C14	1.71E-03	1.71E-04	6.608	0.661	0.0466	0.0047	355.1	0.45
C15	1.84E-03	1.84E-04	7.107	0.712	0.0501	0.0050	356.2	0.50
C16	1.81E-03	1.82E-04	6.999	0.703	0.0493	0.0050	359.0	0.50
C17	1.63E-03	1.64E-04	6.308	0.631	0.0445	0.0044	370.8	0.22
C18	1.96E-03	1.97E-04	7.582	0.761	0.0534	0.0054	384.1	0.11
C19	2.25E-03	2.27E-04	8.687	0.879	0.0612	0.0062	399.2	0.16
D02	3.55E-03	3.55E-04	13.703	1.371	0.0966	0.0097	406.9	0.81
D03	3.08E-03	3.08E-04	11.905	1.191	0.0839	0.0084	389.7	0.87
D04	3.16E-03	3.16E-04	12.216	1.222	0.0861	0.0086	390.5	0.91
D13	2.23E-03	2.27E-04	8.602	0.873	0.0606	0.0062	359.8	1.02
D14	1.67E-03	1.67E-04	6.441	0.644	0.0454	0.0045	353.5	0.49
E03	3.23E-03	3.23E-04	12.461	1.246	0.0878	0.0088	393.6	0.84
F20	9.72E-05	9.72E-06	0.375	0.038	0.0026	0.0003	302.3	0.14
F21	1.53E-04	1.66E-05	0.593	0.064	0.0042	0.0005	302.4	0.11
F22	2.17E-04	2.18E-05	0.838	0.084	0.0059	0.0006	303.4	0.14
F23	1.35E-04	1.38E-05	0.522	0.053	0.0037	0.0004	301.8	0.08
F24	6.60E-05	6.93E-06	0.255	0.027	0.0018	0.0002	300.2	0.11
F25	3.76E-05	4.41E-06	0.145	0.017	0.0010	0.0001	299.9	0.00

Table C - 79. Run 3047 data, Mach 8 nozzle, $Re_\infty = 30.6\times10^6$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.28E-03	3.30E-04	12.802	1.290	0.0897	0.0090	384.4	8.83
B02	3.17E-03	3.17E-04	12.366	1.238	0.0866	0.0087	382.0	8.73
B03	3.17E-03	3.17E-04	12.350	1.239	0.0865	0.0087	381.2	8.81
B04	3.13E-03	3.14E-04	12.220	1.224	0.0856	0.0086	380.8	8.70
B13	1.91E-03	1.94E-04	7.459	0.752	0.0523	0.0053	352.4	5.86
B14	1.71E-03	1.75E-04	6.668	0.682	0.0467	0.0048	346.8	5.14
C01	3.12E-03	3.19E-04	12.153	1.255	0.0851	0.0087	383.8	8.56
C02	3.33E-03	3.36E-04	12.980	1.314	0.0909	0.0092	384.8	9.17
C03	3.13E-03	3.13E-04	12.186	1.220	0.0854	0.0085	380.9	8.60
C04	3.14E-03	3.14E-04	12.247	1.228	0.0858	0.0086	382.0	8.59
C05	3.30E-03	3.31E-04	12.877	1.289	0.0902	0.0090	386.4	8.88
C06	3.34E-03	3.34E-04	13.010	1.307	0.0911	0.0091	386.3	8.99
C07	3.40E-03	3.42E-04	13.248	1.331	0.0928	0.0093	386.8	9.57
C08	3.44E-03	3.45E-04	13.426	1.343	0.0941	0.0094	387.9	9.64
C09	4.06E-03	4.06E-04	15.820	1.585	0.1108	0.0111	404.4	10.92
C10	3.67E-03	3.71E-04	14.292	1.455	0.1001	0.0102	396.5	9.60
C11	3.42E-03	3.46E-04	13.337	1.359	0.0934	0.0095	390.6	9.04
C12	2.58E-03	2.63E-04	10.041	1.019	0.0704	0.0072	369.1	8.06
C13	1.80E-03	1.83E-04	7.031	0.711	0.0493	0.0050	348.9	5.73
C14	1.75E-03	1.77E-04	6.842	0.692	0.0479	0.0048	346.6	5.34
C15	1.71E-03	1.77E-04	6.662	0.683	0.0467	0.0048	345.2	5.70
C16	1.68E-03	1.69E-04	6.547	0.659	0.0459	0.0046	345.3	5.25
C17	2.33E-03	2.38E-04	9.089	0.937	0.0637	0.0065	362.8	6.31
C18	3.45E-03	3.47E-04	13.466	1.359	0.0943	0.0095	389.2	8.91
C19	3.78E-03	3.91E-04	14.740	1.541	0.1033	0.0107	402.2	9.00
D02	3.12E-03	3.12E-04	12.160	1.218	0.0852	0.0085	380.7	8.62
D03	3.05E-03	3.05E-04	11.904	1.193	0.0834	0.0083	379.4	8.45
D04	3.16E-03	3.17E-04	12.316	1.236	0.0863	0.0087	381.9	8.70
D13	1.97E-03	2.05E-04	7.678	0.792	0.0538	0.0056	353.4	6.23
D14	1.74E-03	1.77E-04	6.764	0.684	0.0474	0.0048	346.8	5.52
E03	3.26E-03	3.27E-04	12.690	1.279	0.0889	0.0089	383.8	8.75
F20	1.10E-04	1.17E-05	0.430	0.045	0.0030	0.0003	300.0	0.46
F21	1.35E-04	1.36E-05	0.525	0.053	0.0037	0.0004	300.6	0.51
F22	1.76E-04	1.90E-05	0.688	0.075	0.0048	0.0005	301.5	0.67
F23	1.08E-04	1.09E-05	0.420	0.042	0.0029	0.0003	299.7	0.46
F24	6.49E-05	6.82E-06	0.253	0.027	0.0018	0.0002	298.5	0.13
F25	5.86E-05	6.23E-06	0.229	0.025	0.0016	0.0002	298.3	0.16

Table C - 80. Run 3045 data, Mach 8 nozzle, $Re_\infty = 45.0\times10^6$/ft, α = 0°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.47E-03	3.72E-04	16.427	1.734	0.1024	0.0109	396.6	12.93
B02	1.93E-03	1.74E-03	9.152	8.247	0.0570	0.0514	373.6	14.08
B03	3.02E-03	3.19E-04	14.305	1.484	0.0891	0.0093	385.6	11.25
B04	2.86E-03	2.87E-04	13.568	1.362	0.0845	0.0085	383.9	9.82
B13	2.30E-03	2.77E-04	10.924	1.283	0.0681	0.0081	366.6	10.02
B14	1.25E-03	5.54E-04	5.897	2.622	0.0368	0.0164	355.2	9.81
C01	3.41E-03	3.41E-04	16.153	1.618	0.1006	0.0101	400.3	11.37
C02	3.79E-03	3.84E-04	17.960	1.809	0.1119	0.0113	405.9	12.51
C03	2.44E-03	7.66E-04	11.578	3.616	0.0721	0.0226	377.3	8.78
C04	2.85E-03	2.90E-04	13.495	1.362	0.0841	0.0085	383.2	10.18
C05	3.16E-03	3.22E-04	14.983	1.531	0.0933	0.0095	385.6	11.98
C06	2.45E-03	2.82E-04	11.590	1.302	0.0722	0.0082	370.0	10.27
C07	2.30E-03	2.75E-04	10.885	1.269	0.0678	0.0080	365.9	10.11
C08	1.87E-03	2.19E-04	8.840	1.010	0.0551	0.0064	353.8	8.53
C09	1.79E-03	2.03E-04	8.496	0.938	0.0529	0.0059	352.5	8.15
C10	1.94E-03	2.53E-04	9.202	1.168	0.0573	0.0074	354.1	9.98
C11	1.63E-03	1.75E-04	7.739	0.819	0.0482	0.0051	347.2	7.55
C12	1.77E-03	1.97E-04	8.388	0.914	0.0523	0.0058	354.2	7.77
C13	2.07E-03	5.92E-04	9.816	2.842	0.0611	0.0176	366.0	6.41
C14	2.37E-03	2.42E-04	11.219	1.147	0.0699	0.0071	371.2	8.50
C15	2.64E-03	2.75E-04	12.537	1.292	0.0781	0.0081	376.9	9.92
C16	2.77E-03	2.78E-04	13.152	1.321	0.0819	0.0082	382.1	9.37
C17	3.02E-03	3.05E-04	14.297	1.462	0.0891	0.0090	389.1	9.69
C18	3.39E-03	3.41E-04	16.094	1.631	0.1003	0.0101	398.1	10.74
C19	3.88E-03	3.89E-04	18.373	1.849	0.1145	0.0115	410.2	12.67
D02	3.36E-03	3.56E-04	15.929	1.654	0.0993	0.0104	394.4	12.36
D03	3.44E-03	3.52E-04	16.299	1.693	0.1015	0.0105	396.8	11.27
D04	3.01E-03	3.08E-04	14.291	1.452	0.0890	0.0091	387.4	10.73
D13	2.51E-03	2.59E-04	11.903	1.239	0.0741	0.0077	372.9	9.20
D14	2.49E-03	2.56E-04	11.807	1.213	0.0736	0.0076	374.3	9.03
E03	3.41E-03	3.48E-04	16.191	1.670	0.1009	0.0103	399.6	10.34
F20	1.05E-04	1.79E-05	0.498	0.086	0.0031	0.0005	298.4	0.54
F21	8.79E-05	1.62E-05	0.417	0.078	0.0026	0.0005	298.0	0.50
F22	1.14E-04	1.35E-05	0.540	0.064	0.0034	0.0004	298.7	0.61
F23	1.04E-04	1.23E-05	0.491	0.059	0.0031	0.0004	298.5	0.51
F24	7.92E-05	1.47E-05	0.376	0.071	0.0023	0.0004	297.7	0.29
F25	9.12E-05	1.70E-05	0.433	0.082	0.0027	0.0005	298.0	0.40

Table C - 81. Run 3048 data, Mach 8 nozzle, $Re_\infty = 49.3\times10^6$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.15E-03	3.16E-04	15.702	1.573	0.0950	0.0095	392.7	7.78
B02	3.32E-03	3.60E-04	16.518	1.784	0.0999	0.0108	394.3	9.27
B03	3.27E-03	4.00E-04	16.275	1.977	0.0985	0.0120	392.5	9.36
B04	3.17E-03	3.31E-04	15.786	1.642	0.0955	0.0100	391.5	8.51
B13	2.25E-03	2.26E-04	11.212	1.131	0.0678	0.0068	369.7	5.75
B14	1.92E-03	2.00E-04	9.576	0.992	0.0579	0.0060	358.9	5.80
C01	3.36E-03	3.41E-04	16.747	1.692	0.1013	0.0103	397.9	8.90
C02	3.40E-03	3.41E-04	16.945	1.697	0.1025	0.0103	399.4	8.18
C03	3.25E-03	3.36E-04	16.165	1.667	0.0978	0.0101	394.0	8.49
C04	3.24E-03	3.27E-04	16.152	1.624	0.0977	0.0098	395.3	8.20
C06	3.32E-03	3.34E-04	16.513	1.658	0.0999	0.0100	397.1	8.31
C07	3.32E-03	3.39E-04	16.513	1.681	0.0999	0.0102	396.2	8.64
C08	3.43E-03	3.50E-04	17.071	1.736	0.1033	0.0105	398.5	9.03
C09	4.43E-03	4.47E-04	22.040	2.222	0.1333	0.0135	423.7	10.80
C10	3.77E-03	3.77E-04	18.752	1.880	0.1134	0.0114	409.9	8.97
C11	3.11E-03	3.45E-04	15.489	1.734	0.0937	0.0104	396.6	6.41
C12	2.25E-03	2.27E-04	11.227	1.134	0.0679	0.0069	368.6	6.48
C13	1.63E-03	1.66E-04	8.114	0.828	0.0491	0.0050	349.3	4.97
C14	1.39E-03	1.44E-04	6.937	0.717	0.0420	0.0043	343.0	4.17
C15	1.42E-03	1.45E-04	7.085	0.721	0.0429	0.0044	343.7	4.32
C16	1.63E-03	1.86E-04	8.092	0.939	0.0489	0.0056	353.1	3.53
C17	2.40E-03	2.94E-04	11.966	1.480	0.0724	0.0089	374.6	5.22
C18	3.21E-03	3.35E-04	15.985	1.682	0.0967	0.0101	397.3	6.70
C19	3.80E-03	3.84E-04	18.932	1.918	0.1145	0.0116	414.3	8.29
D02	4.12E-03	5.65E-04	20.501	2.780	0.1240	0.0169	404.3	14.20
D03	3.23E-03	3.25E-04	16.090	1.616	0.0973	0.0098	394.4	8.22
D04	3.51E-03	3.53E-04	17.483	1.753	0.1058	0.0106	399.3	9.09
D13	2.75E-03	2.93E-04	13.714	1.452	0.0830	0.0088	378.8	8.39
D14	2.09E-03	2.18E-04	10.412	1.085	0.0630	0.0066	362.4	5.93
E03	3.33E-03	3.56E-04	16.563	1.759	0.1002	0.0107	394.3	9.42
F20	1.25E-04	1.30E-05	0.622	0.064	0.0038	0.0004	301.9	0.47
F21	1.26E-04	1.41E-05	0.627	0.070	0.0038	0.0004	301.8	0.48
F22	9.09E-05	9.74E-06	0.452	0.048	0.0027	0.0003	300.7	0.36
F23	1.04E-04	1.04E-05	0.518	0.052	0.0031	0.0003	301.2	0.35
F24	6.22E-05	6.41E-06	0.310	0.032	0.0019	0.0002	299.7	0.28
F25	7.46E-05	8.09E-06	0.371	0.040	0.0022	0.0002	300.0	0.26

Table C - 82. Run 3021 data, Mach 10 nozzle, $Re_\infty = 1.2\times10^6$/ft, α = 0°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	6.83E-03	6.85E-04	5.428	0.545	0.099	0.010	303.0	0.4
B02	7.03E-03	7.06E-04	5.590	0.561	0.102	0.010	303.1	0.5
B03	6.74E-03	6.78E-04	5.354	0.539	0.097	0.010	302.9	0.5
B04	6.55E-03	6.56E-04	5.206	0.522	0.095	0.009	302.6	0.4
B13	7.26E-03	7.30E-04	5.770	0.580	0.105	0.011	303.5	0.5
B14	6.88E-03	6.91E-04	5.466	0.548	0.099	0.010	303.0	0.5
C01	7.33E-03	7.37E-04	5.821	0.585	0.106	0.011	304.1	0.5
C02	6.98E-03	6.99E-04	5.550	0.556	0.101	0.010	303.2	0.4
C03	6.73E-03	6.74E-04	5.346	0.536	0.097	0.010	303.8	0.4
C04	6.60E-03	6.62E-04	5.247	0.526	0.095	0.010	302.7	0.4
C05	6.59E-03	6.60E-04	5.233	0.525	0.095	0.010	302.6	0.5
C06	6.90E-03	6.93E-04	5.480	0.551	0.100	0.010	303.0	0.4
C07	7.39E-03	7.42E-04	5.875	0.590	0.107	0.011	303.7	0.5
C08	8.36E-03	8.39E-04	6.647	0.667	0.121	0.012	305.0	0.6
C09	1.01E-02	1.02E-03	8.045	0.807	0.146	0.015	307.5	0.7
C10	1.09E-02	1.09E-03	8.642	0.869	0.157	0.016	308.5	0.7
C11	1.02E-02	1.02E-03	8.087	0.813	0.147	0.015	307.5	0.7
C12	8.03E-03	8.04E-04	6.380	0.639	0.116	0.012	304.9	0.5
C13	7.52E-03	7.53E-04	5.975	0.598	0.109	0.011	304.2	0.5
C14	6.92E-03	6.94E-04	5.499	0.551	0.100	0.010	303.0	0.5
C15	6.67E-03	6.70E-04	5.302	0.532	0.096	0.010	302.7	0.4
C16	6.50E-03	6.53E-04	5.169	0.519	0.094	0.009	302.5	0.5
C17	6.62E-03	6.66E-04	5.259	0.528	0.096	0.010	302.6	0.5
C18	6.90E-03	6.97E-04	5.486	0.552	0.100	0.010	302.9	0.5
C19	7.19E-03	7.24E-04	5.710	0.574	0.104	0.010	303.8	0.5
D02	7.16E-03	7.19E-04	5.693	0.571	0.104	0.010	303.3	0.4
D03	6.72E-03	6.73E-04	5.338	0.535	0.097	0.010	302.8	0.4
D04	6.58E-03	6.59E-04	5.230	0.524	0.095	0.010	302.6	0.5
D13	7.30E-03	7.32E-04	5.801	0.582	0.106	0.011	303.5	0.5
D14	6.86E-03	6.92E-04	5.448	0.549	0.099	0.010	302.9	0.4
E03	6.85E-03	6.86E-04	5.443	0.545	0.099	0.010	303.0	0.5
F20	9.80E-05	2.48E-05	0.078	0.020	0.001	0.000	294.3	0.1
F21	1.08E-04	3.60E-05	0.086	0.029	0.002	0.001	292.9	0.0
F22	1.16E-04	2.70E-05	0.092	0.021	0.002	0.000	294.4	0.2
F23	1.48E-04	2.94E-05	0.117	0.023	0.002	0.000	294.4	0.2
F24	1.16E-04	2.11E-05	0.093	0.017	0.002	0.000	294.4	0.1
F25	1.19E-04	1.91E-05	0.094	0.015	0.002	0.000	294.4	0.2

Table C - 83. Run 3021 data, Mach 10 nozzle, $Re_\infty = 1.2\times10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)^(1/2)	ΔSt×(ReD)^(1/2)	St×(ReD)^(1/5)	ΔSt×(ReD)^(1/5)	Tw (K)	ΔTw (K)
A03	6.35E-03	6.35E-04	4.955	0.496	0.091	0.009	305.3	0.0
B02	6.47E-03	6.47E-04	5.050	0.506	0.093	0.009	305.5	0.2
B03	6.20E-03	6.21E-04	4.842	0.484	0.089	0.009	305.1	0.0
B04	6.02E-03	6.04E-04	4.698	0.471	0.086	0.009	304.8	0.1
B13	7.69E-03	7.73E-04	6.000	0.602	0.110	0.011	306.6	0.2
B14	7.23E-03	7.30E-04	5.642	0.567	0.104	0.010	306.0	0.2
C01	6.55E-03	6.55E-04	5.112	0.511	0.094	0.009	306.6	0.1
C02	6.40E-03	6.40E-04	4.999	0.500	0.092	0.009	305.5	0.1
C03	6.18E-03	6.19E-04	4.828	0.483	0.089	0.009	306.1	0.1
C04	6.09E-03	6.09E-04	4.754	0.475	0.087	0.009	304.9	0.1
C05	6.09E-03	6.09E-04	4.753	0.475	0.087	0.009	304.9	0.1
C06	6.36E-03	6.37E-04	4.968	0.497	0.091	0.009	305.4	0.1
C07	6.76E-03	6.79E-04	5.279	0.529	0.097	0.010	306.2	0.2
C08	7.72E-03	7.73E-04	6.024	0.603	0.111	0.011	307.9	0.2
C09	9.60E-03	9.61E-04	7.491	0.749	0.138	0.014	311.4	0.3
C10	1.08E-02	1.08E-03	8.431	0.843	0.155	0.016	313.0	0.3
C11	1.04E-02	1.05E-03	8.112	0.814	0.149	0.015	312.0	0.3
C12	8.49E-03	8.57E-04	6.630	0.667	0.122	0.012	308.7	0.3
C13	7.98E-03	8.09E-04	6.231	0.629	0.115	0.012	307.5	0.2
C14	7.40E-03	7.50E-04	5.777	0.583	0.106	0.011	306.0	0.2
C15	7.07E-03	7.12E-04	5.523	0.554	0.102	0.010	305.5	0.0
C16	6.92E-03	6.94E-04	5.402	0.541	0.099	0.010	305.3	0.3
C17	7.06E-03	7.08E-04	5.509	0.552	0.101	0.010	305.5	0.3
C18	7.42E-03	7.50E-04	5.793	0.583	0.107	0.011	306.0	0.2
C19	7.72E-03	7.76E-04	6.023	0.604	0.111	0.011	307.1	0.3
D02	6.60E-03	6.60E-04	5.155	0.516	0.095	0.009	305.8	0.1
D03	6.20E-03	6.20E-04	4.837	0.484	0.089	0.009	305.1	0.1
D04	6.12E-03	6.13E-04	4.775	0.478	0.088	0.009	304.9	0.1
D13	7.63E-03	7.79E-04	5.953	0.604	0.109	0.011	306.6	0.3
D14	7.14E-03	7.19E-04	5.578	0.560	0.103	0.010	305.8	0.1
E03	6.33E-03	6.34E-04	4.945	0.495	0.091	0.009	305.3	0.0
F20	2.04E-04	2.78E-05	0.159	0.021	0.003	0.000	294.5	0.1
F21	1.92E-04	2.46E-05	0.150	0.019	0.003	0.000	293.0	0.1
F22	2.85E-04	3.94E-05	0.223	0.031	0.004	0.001	294.6	0.2
F23	7.56E-05	1.11E-05	0.059	0.009	0.001	0.000	294.4	0.1
F24	6.73E-05	1.06E-05	0.053	0.008	0.001	0.000	294.4	0.1
F25	5.53E-05	1.79E-05	0.043	0.014	0.001	0.000	294.4	0.1

Table C - 84. Run 3021 data, Mach 10 nozzle, $Re_\infty = 1.2\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	5.91E-03	5.92E-04	4.587	0.460	0.085	0.008	306.8	0.2
B02	5.98E-03	5.98E-04	4.642	0.465	0.086	0.009	307.1	0.1
B03	5.75E-03	5.76E-04	4.465	0.447	0.082	0.008	306.6	0.0
B04	5.59E-03	5.61E-04	4.341	0.435	0.080	0.008	306.2	0.1
B13	8.11E-03	8.17E-04	6.299	0.634	0.116	0.012	309.3	0.2
B14	7.69E-03	7.70E-04	5.971	0.598	0.110	0.011	308.6	0.2
C01	5.90E-03	5.91E-04	4.583	0.459	0.085	0.008	308.1	0.1
C02	5.85E-03	5.85E-04	4.545	0.455	0.084	0.008	307.0	0.1
C03	5.72E-03	5.72E-04	4.438	0.444	0.082	0.008	307.5	0.2
C04	5.66E-03	5.66E-04	4.393	0.439	0.081	0.008	306.4	0.0
C05	5.69E-03	5.70E-04	4.422	0.443	0.082	0.008	306.4	0.2
C06	5.94E-03	5.95E-04	4.613	0.462	0.085	0.009	306.9	0.2
C07	6.34E-03	6.36E-04	4.925	0.494	0.091	0.009	307.8	0.1
C08	7.25E-03	7.28E-04	5.632	0.565	0.104	0.010	309.8	0.2
C09	9.32E-03	9.34E-04	7.240	0.725	0.134	0.013	314.2	0.2
C10	1.08E-02	1.08E-03	8.348	0.837	0.154	0.015	316.4	0.2
C11	1.07E-02	1.07E-03	8.285	0.830	0.153	0.015	315.6	0.2
C12	8.93E-03	8.93E-04	6.938	0.694	0.128	0.013	311.9	0.1
C13	8.54E-03	8.55E-04	6.630	0.664	0.122	0.012	310.4	0.2
C14	7.98E-03	8.03E-04	6.195	0.624	0.114	0.012	308.7	0.2
C15	7.59E-03	7.61E-04	5.893	0.591	0.109	0.011	308.1	0.1
C16	7.42E-03	7.44E-04	5.762	0.578	0.106	0.011	307.8	0.0
C17	7.59E-03	7.59E-04	5.892	0.590	0.109	0.011	308.1	0.2
C18	8.07E-03	8.08E-04	6.267	0.628	0.116	0.012	308.8	0.1
C19	8.35E-03	8.38E-04	6.482	0.651	0.120	0.012	310.2	0.2
D02	6.09E-03	6.17E-04	4.731	0.479	0.087	0.009	307.3	0.0
D03	5.73E-03	5.77E-04	4.448	0.448	0.082	0.008	306.5	0.1
D04	5.65E-03	5.67E-04	4.388	0.440	0.081	0.008	306.3	0.2
D13	8.20E-03	8.26E-04	6.365	0.641	0.117	0.012	309.4	0.2
D14	7.72E-03	7.73E-04	5.995	0.600	0.111	0.011	308.5	0.2
E03	5.93E-03	5.96E-04	4.602	0.463	0.085	0.009	306.8	0.2
F20	1.98E-04	2.48E-05	0.154	0.019	0.003	0.000	294.5	0.1
F21	2.07E-04	2.42E-05	0.161	0.019	0.003	0.000	293.1	0.1
F22	2.43E-04	2.96E-05	0.188	0.023	0.003	0.000	294.6	0.2
F23	1.11E-04	2.18E-05	0.086	0.017	0.002	0.000	294.5	0.2
F24	6.14E-05	3.90E-05	0.048	0.030	0.001	0.001	294.4	0.2
F25	5.75E-05	1.59E-05	0.045	0.012	0.001	0.000	294.4	0.1

Table C - 85. Run 3021 data, Mach 10 nozzle, $Re_\infty = 1.2\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	5.43E-03	5.45E-04	4.202	0.422	0.078	0.008	308.0	0.1
B02	5.54E-03	5.56E-04	4.286	0.431	0.079	0.008	308.2	0.1
B03	5.24E-03	5.25E-04	4.053	0.406	0.075	0.008	307.6	0.1
B04	5.14E-03	5.16E-04	3.976	0.399	0.073	0.007	307.3	0.2
B13	8.47E-03	8.48E-04	6.554	0.656	0.121	0.012	312.0	0.1
B14	7.91E-03	7.93E-04	6.124	0.614	0.113	0.011	311.1	0.1
C01	5.37E-03	5.38E-04	4.159	0.416	0.077	0.008	309.3	0.1
C02	5.34E-03	5.35E-04	4.131	0.414	0.076	0.008	308.2	0.2
C03	5.27E-03	5.27E-04	4.080	0.408	0.075	0.008	308.6	0.1
C04	5.16E-03	5.18E-04	3.996	0.401	0.074	0.007	307.5	0.0
C05	5.19E-03	5.20E-04	4.014	0.402	0.074	0.007	307.5	0.1
C06	5.43E-03	5.44E-04	4.204	0.421	0.078	0.008	308.1	0.2
C07	5.76E-03	5.78E-04	4.456	0.448	0.082	0.008	309.1	0.0
C08	6.68E-03	6.69E-04	5.167	0.518	0.096	0.010	311.3	0.1
C09	8.88E-03	8.90E-04	6.873	0.689	0.127	0.013	316.6	0.2
C10	1.05E-02	1.05E-03	8.123	0.814	0.150	0.015	319.5	0.3
C11	1.08E-02	1.08E-03	8.323	0.833	0.154	0.015	319.0	0.2
C12	9.42E-03	9.45E-04	7.288	0.732	0.135	0.014	315.2	0.2
C13	8.96E-03	8.99E-04	6.931	0.695	0.128	0.013	313.3	0.2
C14	8.28E-03	8.29E-04	6.409	0.641	0.118	0.012	311.3	0.3
C15	7.84E-03	7.88E-04	6.064	0.609	0.112	0.011	310.7	0.1
C16	7.65E-03	7.66E-04	5.921	0.592	0.109	0.011	310.3	0.1
C17	7.97E-03	7.98E-04	6.165	0.617	0.114	0.011	310.7	0.1
C18	8.49E-03	8.54E-04	6.573	0.660	0.122	0.012	311.7	0.3
C19	8.97E-03	8.99E-04	6.938	0.695	0.128	0.013	313.5	0.2
D02	5.59E-03	5.59E-04	4.324	0.433	0.080	0.008	308.5	0.2
D03	5.20E-03	5.21E-04	4.022	0.403	0.074	0.007	307.6	0.1
D04	5.13E-03	5.15E-04	3.971	0.398	0.073	0.007	307.4	0.2
D13	8.51E-03	8.51E-04	6.583	0.659	0.122	0.012	312.1	0.2
D14	7.97E-03	7.98E-04	6.169	0.617	0.114	0.011	311.0	0.1
E03	5.41E-03	5.45E-04	4.184	0.422	0.077	0.008	308.0	0.2
F20	1.97E-04	3.68E-05	0.152	0.028	0.003	0.001	294.6	0.2
F21	2.04E-04	2.30E-05	0.158	0.018	0.003	0.000	293.2	0.1
F22	2.24E-04	2.92E-05	0.173	0.023	0.003	0.000	294.7	0.1
F23	1.63E-04	2.57E-05	0.126	0.020	0.002	0.000	294.5	0.1
F24	1.04E-04	1.93E-05	0.081	0.015	0.001	0.000	294.4	0.2
F25	8.59E-05	1.28E-05	0.066	0.010	0.001	0.000	294.4	0.1

Table C - 86. Run 3021 data, Mach 10 nozzle, $Re_\infty = 1.2\times10^6$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)^(1/2)	ΔSt×(ReD)^(1/2)	St×(ReD)^(1/5)	ΔSt×(ReD)^(1/5)	Tw (K)	ΔTw (K)
A03	5.00E-03	5.03E-04	3.828	0.385	0.071	0.007	308.9	0.1
B02	4.97E-03	5.01E-04	3.804	0.383	0.071	0.007	309.2	0.2
B03	4.76E-03	4.82E-04	3.647	0.369	0.068	0.007	308.5	0.2
B04	4.68E-03	4.77E-04	3.586	0.365	0.067	0.007	308.2	0.2
B13	8.57E-03	8.58E-04	6.562	0.658	0.122	0.012	314.7	0.2
B14	8.25E-03	8.25E-04	6.315	0.632	0.117	0.012	313.7	0.1
C01	4.77E-03	4.89E-04	3.650	0.373	0.068	0.007	310.3	0.1
C02	4.71E-03	4.84E-04	3.604	0.370	0.067	0.007	309.1	0.2
C03	4.68E-03	4.81E-04	3.584	0.368	0.067	0.007	309.4	0.1
C04	4.64E-03	4.72E-04	3.552	0.361	0.066	0.007	308.3	0.1
C05	4.69E-03	4.85E-04	3.594	0.370	0.067	0.007	308.3	0.0
C06	4.92E-03	5.01E-04	3.771	0.383	0.070	0.007	309.0	0.1
C07	5.24E-03	5.30E-04	4.009	0.405	0.075	0.008	310.0	0.0
C08	6.10E-03	6.15E-04	4.675	0.470	0.087	0.009	312.5	0.0
C09	8.45E-03	8.51E-04	6.469	0.651	0.120	0.012	318.8	0.2
C10	1.04E-02	1.04E-03	7.930	0.795	0.148	0.015	322.5	0.1
C11	1.09E-02	1.10E-03	8.363	0.839	0.156	0.016	322.4	0.3
C12	9.24E-03	9.26E-04	7.078	0.709	0.132	0.013	318.2	0.3
C13	9.02E-03	9.18E-04	6.911	0.704	0.129	0.013	316.2	0.2
C14	8.60E-03	8.66E-04	6.582	0.663	0.122	0.012	314.1	0.1
C15	8.07E-03	8.07E-04	6.180	0.618	0.115	0.011	313.2	0.2
C16	8.12E-03	8.15E-04	6.216	0.624	0.116	0.012	312.9	0.2
C17	8.41E-03	8.41E-04	6.439	0.644	0.120	0.012	313.4	0.3
C18	9.00E-03	9.01E-04	6.892	0.690	0.128	0.013	314.9	0.2
C19	9.63E-03	9.65E-04	7.377	0.739	0.137	0.014	317.0	0.2
D02	5.06E-03	5.11E-04	3.878	0.391	0.072	0.007	309.4	0.0
D03	4.74E-03	4.77E-04	3.629	0.365	0.068	0.007	308.5	0.1
D04	4.65E-03	4.69E-04	3.561	0.358	0.066	0.007	308.2	0.2
D13	8.51E-03	8.58E-04	6.519	0.657	0.121	0.012	314.8	0.2
D14	8.30E-03	8.41E-04	6.357	0.643	0.118	0.012	313.7	0.1
E03	4.90E-03	4.96E-04	3.755	0.380	0.070	0.007	308.9	0.1
F20	1.40E-04	2.46E-05	0.107	0.019	0.002	0.000	294.7	0.1
F21	1.90E-04	2.43E-05	0.146	0.019	0.003	0.000	293.3	0.0
F22	2.42E-04	3.96E-05	0.186	0.030	0.003	0.001	294.8	0.1
F23	1.95E-04	3.38E-05	0.149	0.026	0.003	0.000	294.6	0.1
F24	1.13E-04	1.61E-05	0.087	0.012	0.002	0.000	294.5	0.1
F25	1.57E-04	2.43E-05	0.120	0.019	0.002	0.000	294.5	0.1

Table C - 87. Run 3021 data, Mach 10 nozzle, $Re_\infty = 1.2\times10^6$/ft, α = 20°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.53E-03	4.54E-04	3.406	0.342	0.064	0.006	309.6	0.1
B02	4.50E-03	4.51E-04	3.383	0.339	0.064	0.006	309.9	0.1
B03	4.32E-03	4.32E-04	3.248	0.325	0.061	0.006	309.1	0.1
B04	4.28E-03	4.29E-04	3.220	0.323	0.061	0.006	308.8	0.1
B13	8.46E-03	8.48E-04	6.362	0.637	0.120	0.012	317.1	0.1
B14	8.39E-03	8.42E-04	6.307	0.632	0.119	0.012	316.2	0.1
C01	4.29E-03	4.34E-04	3.227	0.327	0.061	0.006	310.9	0.1
C02	4.14E-03	4.19E-04	3.114	0.316	0.059	0.006	309.7	0.2
C03	4.28E-03	4.31E-04	3.215	0.325	0.060	0.006	310.0	0.2
C04	4.20E-03	4.22E-04	3.158	0.318	0.059	0.006	308.9	0.1
C05	4.28E-03	4.31E-04	3.216	0.324	0.060	0.006	309.0	0.0
C06	4.51E-03	4.51E-04	3.386	0.340	0.064	0.006	309.7	0.1
C07	4.84E-03	4.85E-04	3.639	0.365	0.068	0.007	310.8	0.0
C08	5.61E-03	5.62E-04	4.219	0.423	0.079	0.008	313.5	0.2
C09	8.10E-03	8.11E-04	6.085	0.610	0.114	0.011	320.8	0.2
C10	1.01E-02	1.01E-03	7.614	0.763	0.143	0.014	325.2	0.2
C11	1.08E-02	1.08E-03	8.132	0.814	0.153	0.015	325.6	0.2
C12	9.27E-03	9.29E-04	6.965	0.697	0.131	0.013	321.1	0.3
C13	8.92E-03	9.04E-04	6.701	0.678	0.126	0.013	318.6	0.1
C14	8.65E-03	8.72E-04	6.498	0.654	0.122	0.012	316.6	0.3
C15	8.47E-03	8.54E-04	6.364	0.641	0.120	0.012	315.8	0.3
C16	8.38E-03	8.40E-04	6.302	0.631	0.119	0.012	315.5	0.2
C17	8.79E-03	8.81E-04	6.606	0.662	0.124	0.012	316.1	0.2
C18	9.56E-03	9.60E-04	7.188	0.721	0.135	0.014	318.2	0.3
C19	1.06E-02	1.06E-03	7.971	0.799	0.150	0.015	321.0	0.4
D02	4.58E-03	4.61E-04	3.442	0.348	0.065	0.007	310.1	0.2
D03	4.31E-03	4.34E-04	3.239	0.327	0.061	0.006	309.1	0.0
D04	4.26E-03	4.29E-04	3.204	0.323	0.060	0.006	308.9	0.2
D13	8.55E-03	8.55E-04	6.427	0.643	0.121	0.012	317.2	0.2
D14	8.25E-03	8.27E-04	6.201	0.621	0.117	0.012	316.1	0.1
E03	4.48E-03	4.50E-04	3.371	0.339	0.063	0.006	309.7	0.1
F20	3.11E-04	3.62E-05	0.234	0.027	0.004	0.001	294.8	0.1
F21	3.17E-04	4.16E-05	0.238	0.031	0.004	0.001	293.4	0.1
F22	3.04E-04	3.38E-05	0.229	0.025	0.004	0.000	294.9	0.0
F23	4.11E-04	4.52E-05	0.309	0.034	0.006	0.001	294.8	0.0
F24	2.54E-04	2.86E-05	0.191	0.021	0.004	0.000	294.6	0.1
F25	3.04E-04	4.27E-05	0.228	0.032	0.004	0.001	294.7	0.3

Table C - 88. Run 3021 data, Mach 10 nozzle, $Re_\infty = 1.2\times10^6$/ft, α = 24°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.08E-03	4.11E-04	3.041	0.306	0.058	0.006	310.3	0.2
B02	3.94E-03	3.97E-04	2.933	0.296	0.055	0.006	310.5	0.2
B03	3.88E-03	3.89E-04	2.890	0.290	0.055	0.005	309.8	0.1
B04	3.86E-03	3.88E-04	2.877	0.289	0.054	0.005	309.5	0.1
B13	8.32E-03	8.33E-04	6.200	0.620	0.117	0.012	319.8	0.2
B14	8.23E-03	8.23E-04	6.126	0.613	0.116	0.012	318.9	0.2
C01	3.64E-03	3.67E-04	2.708	0.273	0.051	0.005	311.5	0.2
C02	3.44E-03	3.48E-04	2.564	0.259	0.048	0.005	310.3	0.1
C03	3.70E-03	3.70E-04	2.754	0.276	0.052	0.005	310.5	0.1
C04	3.71E-03	3.71E-04	2.760	0.277	0.052	0.005	309.4	0.1
C05	3.83E-03	3.84E-04	2.854	0.286	0.054	0.005	309.6	0.1
C06	4.05E-03	4.07E-04	3.019	0.303	0.057	0.006	310.4	0.1
C07	4.35E-03	4.36E-04	3.239	0.325	0.061	0.006	311.6	0.1
C08	4.89E-03	4.92E-04	3.642	0.367	0.069	0.007	314.3	0.2
C09	7.49E-03	7.51E-04	5.581	0.559	0.106	0.011	322.8	0.2
C10	9.52E-03	9.52E-04	7.090	0.709	0.134	0.013	328.1	0.3
C11	1.04E-02	1.05E-03	7.771	0.778	0.147	0.015	329.1	0.3
C12	9.07E-03	9.08E-04	6.753	0.676	0.128	0.013	324.5	0.3
C13	8.89E-03	8.93E-04	6.620	0.665	0.125	0.013	321.6	0.3
C14	8.48E-03	8.62E-04	6.318	0.642	0.120	0.012	319.5	0.1
C15	8.33E-03	8.34E-04	6.205	0.621	0.117	0.012	318.8	0.3
C16	8.46E-03	8.50E-04	6.304	0.633	0.119	0.012	318.5	0.3
C17	8.92E-03	8.93E-04	6.641	0.665	0.126	0.013	319.5	0.4
C18	9.91E-03	9.94E-04	7.378	0.740	0.140	0.014	322.3	0.5
C19	1.14E-02	1.14E-03	8.454	0.849	0.160	0.016	326.0	0.5
D02	3.97E-03	3.98E-04	2.958	0.297	0.056	0.006	310.8	0.1
D03	3.82E-03	3.83E-04	2.842	0.285	0.054	0.005	309.7	0.2
D04	3.80E-03	3.82E-04	2.833	0.284	0.054	0.005	309.5	0.1
D13	8.47E-03	8.49E-04	6.306	0.632	0.119	0.012	320.0	0.2
D14	8.20E-03	8.25E-04	6.103	0.614	0.115	0.012	318.8	0.3
E03	3.93E-03	3.96E-04	2.930	0.295	0.055	0.006	310.3	0.1
F20	3.53E-04	3.70E-05	0.263	0.028	0.005	0.001	295.0	0.1
F21	4.48E-04	4.59E-05	0.334	0.034	0.006	0.001	293.7	0.2
F22	3.94E-04	4.04E-05	0.293	0.030	0.006	0.001	295.2	0.2
F23	8.30E-04	8.78E-05	0.618	0.065	0.012	0.001	295.5	0.1
F24	4.31E-04	5.04E-05	0.321	0.037	0.006	0.001	295.0	0.3
F25	5.05E-04	5.26E-05	0.376	0.039	0.007	0.001	295.0	0.3

Table C - 89. Run 3037 data, Mach 10 nozzle, $Re_\infty = 1.3\times10^6$/ft, α = 0°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	7.28E-03	7.33E-04	5.974	0.604	0.107	0.011	305.0	0.3
B02	7.51E-03	7.55E-04	6.169	0.619	0.110	0.011	305.3	0.5
B03	7.09E-03	7.13E-04	5.818	0.584	0.104	0.010	304.8	0.4
B04	7.13E-03	7.18E-04	5.857	0.589	0.104	0.011	304.9	0.3
B13	7.79E-03	8.00E-04	6.397	0.652	0.114	0.012	305.5	0.4
B14	7.52E-03	7.69E-04	6.174	0.627	0.110	0.011	305.4	0.4
C01	7.83E-03	7.85E-04	6.432	0.646	0.115	0.012	306.1	0.4
C02	7.49E-03	7.50E-04	6.148	0.616	0.110	0.011	305.3	0.4
C03	7.21E-03	7.23E-04	5.917	0.592	0.106	0.011	305.1	0.4
C04	7.21E-03	7.26E-04	5.922	0.596	0.106	0.011	305.0	0.3
C05	7.19E-03	7.20E-04	5.903	0.591	0.105	0.011	304.9	0.4
C06	7.47E-03	7.51E-04	6.136	0.618	0.109	0.011	305.2	0.5
C07	8.01E-03	8.05E-04	6.574	0.661	0.117	0.012	305.7	0.5
C08	9.06E-03	9.11E-04	7.440	0.747	0.133	0.013	307.0	0.5
C09	1.09E-02	1.10E-03	8.977	0.899	0.160	0.016	309.4	0.7
C10	1.17E-02	1.18E-03	9.595	0.965	0.171	0.017	310.2	0.8
C11	1.09E-02	1.11E-03	8.948	0.904	0.160	0.016	309.3	0.7
C12	8.48E-03	8.64E-04	6.963	0.704	0.124	0.013	306.8	0.6
C13	7.95E-03	8.05E-04	6.525	0.658	0.116	0.012	305.6	0.4
C14	7.38E-03	7.49E-04	6.058	0.611	0.108	0.011	305.1	0.5
C15	7.08E-03	7.23E-04	5.810	0.590	0.104	0.011	304.7	0.4
C16	6.96E-03	7.10E-04	5.717	0.579	0.102	0.010	304.6	0.4
C17	7.03E-03	7.10E-04	5.774	0.581	0.103	0.010	304.7	0.4
C18	7.40E-03	7.43E-04	6.073	0.609	0.108	0.011	305.1	0.4
C19	7.74E-03	7.79E-04	6.357	0.639	0.113	0.011	306.0	0.5
D02	7.63E-03	7.64E-04	6.266	0.627	0.112	0.011	305.4	0.3
D03	7.21E-03	7.23E-04	5.920	0.593	0.106	0.011	305.0	0.4
D04	7.13E-03	7.16E-04	5.855	0.587	0.104	0.010	304.8	0.4
D13	7.76E-03	8.03E-04	6.373	0.654	0.114	0.012	305.5	0.5
D14	7.36E-03	7.52E-04	6.044	0.613	0.108	0.011	305.1	0.4
E03	7.37E-03	7.41E-04	6.055	0.610	0.108	0.011	305.1	0.4
F20	1.07E-04	2.46E-05	0.088	0.020	0.002	0.000	297.2	0.2
F21	1.02E-04	1.79E-05	0.084	0.015	0.001	0.000	297.2	0.0
F22	1.18E-04	2.21E-05	0.097	0.018	0.002	0.000	297.2	0.2
F23	1.33E-04	2.31E-05	0.109	0.019	0.002	0.000	297.3	0.2
F24	1.18E-04	2.50E-05	0.097	0.020	0.002	0.000	297.2	0.2
F25	1.36E-04	1.78E-05	0.112	0.015	0.002	0.000	297.2	0.1

Table C - 90. Run 3037 data, Mach 10 nozzle, $Re_\infty = 1.3\times10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	6.79E-03	6.79E-04	5.443	0.545	0.098	0.010	307.2	0.0
B02	6.91E-03	6.91E-04	5.538	0.555	0.100	0.010	307.5	0.1
B03	6.57E-03	6.57E-04	5.263	0.527	0.095	0.010	306.9	0.0
B04	6.66E-03	6.68E-04	5.342	0.536	0.097	0.010	307.0	0.1
B13	8.26E-03	8.31E-04	6.618	0.666	0.120	0.012	308.5	0.2
B14	8.01E-03	8.05E-04	6.424	0.645	0.116	0.012	308.1	0.3
C01	7.03E-03	7.04E-04	5.639	0.564	0.102	0.010	308.5	0.2
C02	6.82E-03	6.82E-04	5.469	0.547	0.099	0.010	307.4	0.1
C03	6.61E-03	6.62E-04	5.301	0.531	0.096	0.010	307.2	0.1
C04	6.59E-03	6.61E-04	5.282	0.530	0.096	0.010	307.1	0.1
C05	6.65E-03	6.67E-04	5.329	0.535	0.096	0.010	307.1	0.1
C06	6.88E-03	6.88E-04	5.513	0.552	0.100	0.010	307.5	0.1
C07	7.37E-03	7.38E-04	5.908	0.591	0.107	0.011	308.2	0.1
C08	8.30E-03	8.31E-04	6.652	0.667	0.120	0.012	309.7	0.1
C09	1.04E-02	1.04E-03	8.326	0.833	0.151	0.015	313.0	0.3
C10	1.15E-02	1.16E-03	9.256	0.928	0.168	0.017	314.3	0.2
C11	1.13E-02	1.14E-03	9.095	0.910	0.165	0.016	313.5	0.2
C12	9.11E-03	9.13E-04	7.303	0.731	0.132	0.013	310.2	0.2
C13	8.57E-03	8.63E-04	6.870	0.691	0.124	0.013	308.7	0.2
C14	7.97E-03	8.11E-04	6.386	0.649	0.116	0.012	307.9	0.2
C15	7.61E-03	7.73E-04	6.097	0.618	0.110	0.011	307.5	0.0
C16	7.46E-03	7.59E-04	5.982	0.607	0.108	0.011	307.3	0.1
C17	7.52E-03	7.65E-04	6.031	0.612	0.109	0.011	307.4	0.2
C18	8.01E-03	8.18E-04	6.420	0.654	0.116	0.012	308.0	0.3
C19	8.31E-03	8.45E-04	6.664	0.676	0.121	0.012	309.1	0.1
D02	7.01E-03	7.02E-04	5.621	0.563	0.102	0.010	307.6	0.1
D03	6.69E-03	6.70E-04	5.363	0.537	0.097	0.010	307.1	0.1
D04	6.61E-03	6.65E-04	5.299	0.533	0.096	0.010	306.9	0.0
D13	8.34E-03	8.35E-04	6.684	0.669	0.121	0.012	308.5	0.1
D14	7.99E-03	8.01E-04	6.405	0.642	0.116	0.012	307.9	0.1
E03	6.81E-03	6.82E-04	5.459	0.547	0.099	0.010	307.3	0.0
F20	2.29E-04	2.73E-05	0.184	0.022	0.003	0.000	297.3	0.1
F21	2.03E-04	2.43E-05	0.162	0.020	0.003	0.000	297.3	0.0
F22	2.74E-04	4.88E-05	0.219	0.039	0.004	0.001	297.4	0.1
F23	4.18E-05	3.09E-05	0.034	0.025	0.001	0.000	297.3	0.1
F24	6.67E-05	1.08E-05	0.054	0.009	0.001	0.000	297.2	0.2
F25	4.50E-05	7.85E-06	0.036	0.006	0.001	0.000	297.2	0.2

Table C - 91. Run 3037 data, Mach 10 nozzle, $Re_\infty = 1.3\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	6.40E-03	6.49E-04	5.076	0.515	0.092	0.009	308.7	0.1
B02	6.48E-03	6.55E-04	5.144	0.519	0.094	0.009	308.9	0.0
B03	6.17E-03	6.22E-04	4.892	0.493	0.089	0.009	308.3	0.1
B04	6.18E-03	6.22E-04	4.902	0.493	0.089	0.009	308.4	0.1
B13	8.74E-03	8.77E-04	6.938	0.696	0.126	0.013	311.0	0.2
B14	8.84E-03	9.07E-04	7.015	0.719	0.128	0.013	310.9	0.2
C01	6.36E-03	6.37E-04	5.048	0.506	0.092	0.009	310.0	0.1
C02	6.32E-03	6.34E-04	5.012	0.503	0.091	0.009	308.9	0.1
C03	6.13E-03	6.14E-04	4.868	0.487	0.089	0.009	308.6	0.2
C04	6.16E-03	6.21E-04	4.892	0.492	0.089	0.009	308.4	0.1
C05	6.18E-03	6.19E-04	4.903	0.491	0.089	0.009	308.5	0.1
C06	6.43E-03	6.45E-04	5.105	0.512	0.093	0.009	308.9	0.1
C07	6.85E-03	6.90E-04	5.432	0.548	0.099	0.010	309.7	0.0
C08	7.79E-03	7.85E-04	6.182	0.622	0.113	0.011	311.5	0.2
C09	1.01E-02	1.01E-03	7.976	0.803	0.145	0.015	315.7	0.0
C10	1.15E-02	1.16E-03	9.162	0.920	0.167	0.017	317.6	0.1
C11	1.16E-02	1.16E-03	9.173	0.920	0.167	0.017	316.9	0.2
C12	9.76E-03	9.78E-04	7.741	0.776	0.141	0.014	313.4	0.2
C13	9.18E-03	9.21E-04	7.288	0.731	0.133	0.013	311.5	0.2
C14	8.37E-03	8.39E-04	6.642	0.666	0.121	0.012	310.4	0.0
C15	7.98E-03	7.99E-04	6.334	0.634	0.115	0.012	309.9	0.2
C16	7.91E-03	7.91E-04	6.274	0.628	0.114	0.011	309.7	0.2
C17	8.11E-03	8.13E-04	6.438	0.645	0.117	0.012	309.8	0.2
C18	8.62E-03	8.63E-04	6.838	0.685	0.125	0.012	310.6	0.2
C19	8.99E-03	8.99E-04	7.131	0.713	0.130	0.013	312.0	0.2
D02	6.52E-03	6.54E-04	5.171	0.518	0.094	0.009	309.0	0.1
D03	6.18E-03	6.23E-04	4.908	0.494	0.089	0.009	308.4	0.0
D04	6.13E-03	6.17E-04	4.866	0.489	0.089	0.009	308.3	0.1
D13	8.75E-03	8.77E-04	6.945	0.695	0.126	0.013	311.1	0.1
D14	8.38E-03	8.40E-04	6.646	0.666	0.121	0.012	310.4	0.1
E03	6.35E-03	6.40E-04	5.039	0.508	0.092	0.009	308.7	0.1
F20	2.07E-04	2.48E-05	0.164	0.020	0.003	0.000	297.4	0.1
F21	2.03E-04	2.23E-05	0.161	0.018	0.003	0.000	297.4	0.0
F22	2.71E-04	3.48E-05	0.215	0.028	0.004	0.001	297.5	0.1
F23	8.39E-05	2.48E-05	0.067	0.020	0.001	0.000	297.3	0.1
F24	5.07E-05	1.27E-05	0.040	0.010	0.001	0.000	297.2	0.1
F25	5.88E-05	1.46E-05	0.047	0.012	0.001	0.000	297.2	0.0

Table C - 92. Run 3037 data, Mach 10 nozzle, $Re_\infty = 1.3\times10^6$/ft, $\alpha = 12°$.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	5.86E-03	5.86E-04	4.625	0.463	0.084	0.008	309.7	0.1
B02	5.90E-03	5.93E-04	4.655	0.468	0.085	0.009	310.0	0.1
B03	5.61E-03	5.65E-04	4.424	0.446	0.081	0.008	309.3	0.1
B04	5.59E-03	5.64E-04	4.413	0.445	0.081	0.008	309.4	0.1
B13	9.13E-03	9.15E-04	7.205	0.722	0.132	0.013	313.6	0.1
B14	8.91E-03	9.01E-04	7.029	0.710	0.128	0.013	313.2	0.0
C01	5.78E-03	5.85E-04	4.558	0.462	0.083	0.008	311.1	0.2
C02	5.72E-03	5.76E-04	4.514	0.454	0.082	0.008	309.9	0.2
C03	5.61E-03	5.66E-04	4.427	0.447	0.081	0.008	309.6	0.1
C04	5.61E-03	5.65E-04	4.426	0.446	0.081	0.008	309.4	0.1
C05	5.66E-03	5.70E-04	4.470	0.450	0.082	0.008	309.5	0.0
C06	5.88E-03	5.93E-04	4.643	0.468	0.085	0.009	310.0	0.1
C07	6.28E-03	6.30E-04	4.953	0.497	0.090	0.009	310.9	0.1
C08	7.22E-03	7.23E-04	5.695	0.570	0.104	0.010	312.9	0.1
C09	9.63E-03	9.63E-04	7.597	0.760	0.139	0.014	317.9	0.2
C10	1.14E-02	1.14E-03	8.981	0.898	0.164	0.016	320.4	0.3
C11	1.17E-02	1.17E-03	9.194	0.921	0.168	0.017	320.0	0.3
C12	9.96E-03	9.96E-04	7.857	0.786	0.144	0.014	316.3	0.3
C13	9.70E-03	9.85E-04	7.652	0.776	0.140	0.014	314.2	0.3
C14	8.82E-03	8.83E-04	6.956	0.696	0.127	0.013	312.9	0.2
C15	8.35E-03	8.36E-04	6.589	0.659	0.120	0.012	312.2	0.2
C16	8.19E-03	8.23E-04	6.464	0.649	0.118	0.012	311.9	0.1
C17	8.35E-03	8.36E-04	6.590	0.660	0.120	0.012	312.1	0.2
C18	9.07E-03	9.07E-04	7.155	0.716	0.131	0.013	313.3	0.2
C19	9.61E-03	9.61E-04	7.580	0.758	0.138	0.014	314.9	0.3
D02	5.96E-03	5.97E-04	4.705	0.471	0.086	0.009	310.1	0.2
D03	5.58E-03	5.59E-04	4.405	0.441	0.080	0.008	309.4	0.1
D04	5.55E-03	5.56E-04	4.378	0.439	0.080	0.008	309.3	0.1
D13	9.10E-03	9.13E-04	7.182	0.721	0.131	0.013	313.5	0.2
D14	8.59E-03	8.61E-04	6.779	0.679	0.124	0.012	312.7	0.2
E03	5.83E-03	5.84E-04	4.599	0.461	0.084	0.008	309.8	0.0
F20	2.23E-04	2.91E-05	0.176	0.023	0.003	0.000	297.4	0.1
F21	2.01E-04	2.32E-05	0.159	0.018	0.003	0.000	297.4	0.1
F22	2.92E-04	3.25E-05	0.230	0.026	0.004	0.000	297.6	0.0
F23	1.67E-04	1.99E-05	0.131	0.016	0.002	0.000	297.4	0.1
F24	9.64E-05	1.25E-05	0.076	0.010	0.001	0.000	297.3	0.2
F25	7.18E-05	1.40E-05	0.057	0.011	0.001	0.000	297.3	0.2

Table C - 93. Run 3037 data, Mach 10 nozzle, $Re_\infty = 1.3\times10^6$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)^(1/2)	ΔSt×(ReD)^(1/2)	St×(ReD)^(1/5)	ΔSt×(ReD)^(1/5)	Tw (K)	ΔTw (K)
A03	5.24E-03	5.25E-04	4.114	0.412	0.075	0.008	310.6	0.2
B02	5.31E-03	5.38E-04	4.175	0.422	0.076	0.008	310.9	0.2
B03	4.99E-03	5.01E-04	3.924	0.393	0.072	0.007	310.1	0.2
B04	4.98E-03	5.01E-04	3.911	0.393	0.072	0.007	310.1	0.1
B13	9.14E-03	9.16E-04	7.185	0.720	0.132	0.013	316.0	0.2
B14	8.93E-03	9.09E-04	7.014	0.714	0.128	0.013	315.7	0.2
C01	5.15E-03	5.19E-04	4.044	0.407	0.074	0.007	311.9	0.2
C02	5.03E-03	5.05E-04	3.950	0.396	0.072	0.007	310.8	0.0
C03	4.96E-03	5.00E-04	3.898	0.393	0.071	0.007	310.3	0.2
C04	4.95E-03	5.00E-04	3.893	0.393	0.071	0.007	310.2	0.1
C05	5.02E-03	5.04E-04	3.942	0.396	0.072	0.007	310.2	0.0
C06	5.27E-03	5.30E-04	4.140	0.416	0.076	0.008	310.8	0.0
C07	5.62E-03	5.65E-04	4.416	0.443	0.081	0.008	311.8	0.1
C08	6.44E-03	6.49E-04	5.058	0.510	0.093	0.009	313.9	0.0
C09	9.01E-03	9.04E-04	7.079	0.710	0.130	0.013	319.9	0.2
C10	1.10E-02	1.10E-03	8.645	0.865	0.158	0.016	323.1	0.1
C11	1.16E-02	1.16E-03	9.089	0.909	0.166	0.017	323.1	0.2
C12	9.92E-03	9.95E-04	7.797	0.781	0.143	0.014	319.1	0.3
C13	9.67E-03	9.84E-04	7.598	0.772	0.139	0.014	316.8	0.2
C14	9.22E-03	9.29E-04	7.245	0.730	0.133	0.013	315.5	0.2
C15	8.70E-03	8.70E-04	6.833	0.683	0.125	0.013	314.6	0.2
C16	8.41E-03	8.47E-04	6.606	0.665	0.121	0.012	314.3	0.0
C17	8.61E-03	8.66E-04	6.763	0.681	0.124	0.012	314.5	0.2
C18	9.37E-03	9.40E-04	7.359	0.739	0.135	0.014	316.0	0.2
C19	1.01E-02	1.01E-03	7.943	0.797	0.145	0.015	318.1	0.2
D02	5.43E-03	5.48E-04	4.265	0.430	0.078	0.008	311.1	0.0
D03	5.05E-03	5.11E-04	3.967	0.401	0.073	0.007	310.2	0.1
D04	4.98E-03	5.04E-04	3.911	0.396	0.072	0.007	310.1	0.2
D13	9.11E-03	9.12E-04	7.161	0.717	0.131	0.013	316.0	0.1
D14	8.83E-03	8.85E-04	6.940	0.695	0.127	0.013	315.2	0.0
E03	5.25E-03	5.34E-04	4.125	0.419	0.076	0.008	310.7	0.1
F20	1.94E-04	3.14E-05	0.152	0.025	0.003	0.000	297.5	0.2
F21	2.04E-04	2.45E-05	0.160	0.019	0.003	0.000	297.5	0.1
F22	3.00E-04	3.10E-05	0.236	0.024	0.004	0.000	297.7	0.1
F23	1.51E-04	2.24E-05	0.118	0.018	0.002	0.000	297.4	0.1
F24	8.68E-05	1.22E-05	0.068	0.010	0.001	0.000	297.3	0.1
F25	1.55E-04	3.17E-05	0.122	0.025	0.002	0.000	297.3	0.1

Table C - 94. Run 3037 data, Mach 10 nozzle, $Re_\infty = 1.3\times10^6$/ft, α = 20°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.82E-03	4.82E-04	3.783	0.379	0.069	0.007	311.2	0.1
B02	4.74E-03	4.76E-04	3.719	0.374	0.068	0.007	311.5	0.1
B03	4.48E-03	4.51E-04	3.518	0.354	0.064	0.006	310.6	0.1
B04	4.49E-03	4.50E-04	3.524	0.353	0.065	0.006	310.7	0.1
B13	9.14E-03	9.22E-04	7.180	0.724	0.132	0.013	318.2	0.2
B14	8.86E-03	8.90E-04	6.960	0.699	0.128	0.013	317.8	0.2
C01	4.52E-03	4.52E-04	3.546	0.355	0.065	0.007	312.5	0.2
C02	4.36E-03	4.38E-04	3.420	0.344	0.063	0.006	311.3	0.1
C03	4.44E-03	4.45E-04	3.483	0.349	0.064	0.006	310.8	0.1
C04	4.43E-03	4.46E-04	3.480	0.350	0.064	0.006	310.6	0.1
C05	4.51E-03	4.52E-04	3.539	0.355	0.065	0.006	310.8	0.2
C06	4.74E-03	4.76E-04	3.721	0.373	0.068	0.007	311.4	0.1
C07	5.09E-03	5.09E-04	3.993	0.400	0.073	0.007	312.4	0.0
C08	5.86E-03	5.89E-04	4.603	0.462	0.084	0.008	314.7	0.1
C09	8.51E-03	8.51E-04	6.684	0.668	0.122	0.012	321.6	0.1
C10	1.06E-02	1.06E-03	8.340	0.834	0.153	0.015	325.5	0.2
C11	1.14E-02	1.14E-03	8.969	0.898	0.164	0.016	326.0	0.3
C12	9.83E-03	9.85E-04	7.720	0.773	0.141	0.014	321.7	0.3
C13	9.58E-03	9.60E-04	7.524	0.754	0.138	0.014	319.1	0.2
C14	9.23E-03	9.25E-04	7.247	0.727	0.133	0.013	317.8	0.1
C15	9.15E-03	9.18E-04	7.182	0.721	0.132	0.013	317.1	0.2
C16	8.90E-03	8.91E-04	6.990	0.700	0.128	0.013	316.6	0.1
C17	9.10E-03	9.15E-04	7.141	0.719	0.131	0.013	317.0	0.2
C18	9.93E-03	9.99E-04	7.799	0.785	0.143	0.014	318.9	0.3
C19	1.10E-02	1.11E-03	8.659	0.870	0.159	0.016	321.6	0.2
D02	4.85E-03	4.90E-04	3.812	0.385	0.070	0.007	311.7	0.1
D03	4.53E-03	4.54E-04	3.559	0.357	0.065	0.007	310.8	0.1
D04	4.48E-03	4.49E-04	3.516	0.353	0.064	0.006	310.6	0.0
D13	9.09E-03	9.10E-04	7.135	0.715	0.131	0.013	318.2	0.1
D14	8.96E-03	8.96E-04	7.033	0.704	0.129	0.013	317.4	0.2
E03	4.67E-03	4.68E-04	3.668	0.368	0.067	0.007	311.3	0.1
F20	1.65E-04	1.91E-05	0.130	0.015	0.002	0.000	297.5	0.1
F21	1.72E-04	1.77E-05	0.135	0.014	0.002	0.000	297.5	0.0
F22	2.82E-04	4.28E-05	0.222	0.034	0.004	0.001	297.7	0.1
F23	1.88E-04	2.11E-05	0.148	0.017	0.003	0.000	297.5	0.2
F24	2.63E-04	3.08E-05	0.207	0.024	0.004	0.000	297.5	0.1
F25	2.97E-04	3.10E-05	0.233	0.024	0.004	0.000	297.5	0.2

Table C - 95. Run 3037 data, Mach 10 nozzle, $Re_\infty = 1.3\times10^6$/ft, α = 24°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.32E-03	4.37E-04	3.351	0.339	0.062	0.006	311.8	0.2
B02	4.20E-03	4.24E-04	3.257	0.329	0.060	0.006	312.0	0.1
B03	4.05E-03	4.07E-04	3.135	0.315	0.058	0.006	311.1	0.1
B04	4.11E-03	4.12E-04	3.187	0.320	0.059	0.006	311.2	0.1
B13	9.00E-03	9.01E-04	6.974	0.698	0.129	0.013	320.6	0.2
B14	8.78E-03	8.83E-04	6.802	0.684	0.126	0.013	320.2	0.1
C01	3.93E-03	3.97E-04	3.047	0.307	0.056	0.006	313.0	0.2
C02	3.69E-03	3.72E-04	2.863	0.288	0.053	0.005	311.8	0.1
C03	3.94E-03	3.96E-04	3.050	0.307	0.056	0.006	311.2	0.1
C04	3.96E-03	3.98E-04	3.066	0.308	0.057	0.006	311.1	0.1
C05	4.08E-03	4.10E-04	3.165	0.318	0.058	0.006	311.3	0.1
C06	4.33E-03	4.34E-04	3.351	0.336	0.062	0.006	312.0	0.2
C07	4.63E-03	4.68E-04	3.590	0.363	0.066	0.007	313.1	0.1
C08	5.15E-03	5.22E-04	3.994	0.405	0.074	0.007	315.4	0.1
C09	8.01E-03	8.02E-04	6.205	0.622	0.115	0.011	323.3	0.1
C10	1.02E-02	1.02E-03	7.871	0.789	0.145	0.015	328.1	0.1
C11	1.12E-02	1.12E-03	8.654	0.866	0.160	0.016	329.1	0.3
C12	9.71E-03	9.71E-04	7.521	0.753	0.139	0.014	324.7	0.3
C13	9.47E-03	9.49E-04	7.336	0.735	0.136	0.014	321.6	0.3
C14	9.02E-03	9.05E-04	6.985	0.701	0.129	0.013	320.3	0.1
C15	8.82E-03	8.89E-04	6.836	0.689	0.126	0.013	319.5	0.1
C16	9.11E-03	9.12E-04	7.058	0.706	0.130	0.013	319.4	0.3
C17	9.40E-03	9.42E-04	7.281	0.730	0.134	0.013	319.9	0.3
C18	1.04E-02	1.04E-03	8.024	0.806	0.148	0.015	322.5	0.3
C19	1.18E-02	1.18E-03	9.167	0.917	0.169	0.017	325.9	0.3
D02	4.26E-03	4.31E-04	3.297	0.334	0.061	0.006	312.2	0.0
D03	4.06E-03	4.09E-04	3.143	0.317	0.058	0.006	311.2	0.1
D04	4.05E-03	4.07E-04	3.134	0.316	0.058	0.006	311.1	0.1
D13	9.04E-03	9.05E-04	7.007	0.702	0.129	0.013	320.7	0.2
D14	8.82E-03	8.84E-04	6.830	0.684	0.126	0.013	319.8	0.3
E03	4.18E-03	4.23E-04	3.239	0.328	0.060	0.006	311.8	0.1
F20	2.46E-04	2.95E-05	0.191	0.023	0.004	0.000	297.6	0.0
F21	2.53E-04	2.74E-05	0.196	0.021	0.004	0.000	297.6	0.1
F22	2.80E-04	2.97E-05	0.217	0.023	0.004	0.000	297.8	0.2
F23	2.10E-04	3.11E-05	0.163	0.024	0.003	0.000	297.6	0.3
F24	4.46E-04	4.57E-05	0.345	0.035	0.006	0.001	297.7	0.2
F25	4.98E-04	5.37E-05	0.386	0.042	0.007	0.001	297.8	0.1

Table C - 96. Run 3020 data, Mach 10 nozzle, $Re_\infty = 1.9\times10^6$/ft, α = 0°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	5.48E-03	5.48E-04	5.295	0.530	0.086	0.009	310.8	0.4
B02	5.63E-03	5.63E-04	5.440	0.545	0.088	0.009	311.2	0.5
B03	5.37E-03	5.37E-04	5.188	0.520	0.084	0.008	310.6	0.4
B04	5.21E-03	5.21E-04	5.036	0.504	0.081	0.008	310.1	0.4
B13	5.75E-03	5.76E-04	5.564	0.557	0.090	0.009	311.7	0.5
B14	5.46E-03	5.47E-04	5.279	0.528	0.085	0.009	310.8	0.5
C01	5.81E-03	5.85E-04	5.616	0.566	0.091	0.009	312.9	0.5
C02	5.63E-03	5.66E-04	5.445	0.548	0.088	0.009	311.2	0.4
C03	5.41E-03	5.43E-04	5.228	0.525	0.085	0.008	311.6	0.5
C04	5.30E-03	5.31E-04	5.126	0.513	0.083	0.008	310.3	0.5
C05	5.27E-03	5.28E-04	5.099	0.510	0.082	0.008	310.2	0.5
C06	5.50E-03	5.50E-04	5.313	0.532	0.086	0.009	311.0	0.5
C07	5.85E-03	5.87E-04	5.657	0.569	0.091	0.009	312.2	0.5
C08	6.65E-03	6.68E-04	6.432	0.646	0.104	0.010	314.7	0.5
C09	8.08E-03	8.12E-04	7.813	0.787	0.126	0.013	319.7	0.7
C10	8.73E-03	8.74E-04	8.439	0.846	0.136	0.014	321.4	0.8
C11	8.06E-03	8.07E-04	7.793	0.781	0.126	0.013	319.5	0.7
C12	6.31E-03	6.32E-04	6.098	0.610	0.099	0.010	314.5	0.6
C13	5.95E-03	5.96E-04	5.749	0.575	0.093	0.009	312.9	0.5
C14	5.46E-03	5.48E-04	5.280	0.529	0.085	0.009	310.8	0.5
C15	5.30E-03	5.31E-04	5.120	0.513	0.083	0.008	310.3	0.5
C16	5.21E-03	5.23E-04	5.034	0.506	0.081	0.008	309.9	0.5
C17	5.33E-03	5.34E-04	5.154	0.516	0.083	0.008	310.3	0.5
C18	5.58E-03	5.59E-04	5.399	0.541	0.087	0.009	311.0	0.5
C19	5.76E-03	5.78E-04	5.568	0.558	0.090	0.009	312.6	0.6
D02	5.73E-03	5.74E-04	5.536	0.556	0.090	0.009	311.5	0.5
D03	5.34E-03	5.35E-04	5.165	0.517	0.084	0.008	310.5	0.5
D04	5.22E-03	5.23E-04	5.047	0.506	0.082	0.008	310.1	0.4
D13	5.74E-03	5.75E-04	5.547	0.556	0.090	0.009	311.7	0.4
D14	5.43E-03	5.44E-04	5.252	0.526	0.085	0.009	310.7	0.5
E03	5.44E-03	5.44E-04	5.259	0.527	0.085	0.009	310.7	0.4
F20	8.57E-05	1.04E-05	0.083	0.010	0.001	0.000	294.6	0.1
F21	7.56E-05	1.52E-05	0.073	0.015	0.001	0.000	292.8	0.1
F22	9.78E-05	1.62E-05	0.095	0.016	0.002	0.000	294.6	0.1
F23	1.21E-04	1.67E-05	0.117	0.016	0.002	0.000	294.7	0.1
F24	9.27E-05	1.06E-05	0.090	0.010	0.001	0.000	294.6	0.1
F25	9.46E-05	1.15E-05	0.091	0.011	0.001	0.000	294.6	0.3

Table C - 97. Run 3020 data, Mach 10 nozzle, $Re_\infty = 1.9\times10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	5.08E-03	5.09E-04	4.904	0.491	0.079	0.008	312.2	0.2
B02	5.21E-03	5.22E-04	5.026	0.504	0.081	0.008	312.6	0.1
B03	5.01E-03	5.02E-04	4.839	0.485	0.078	0.008	312.0	0.2
B04	4.84E-03	4.85E-04	4.674	0.468	0.076	0.008	311.4	0.0
B13	6.06E-03	6.06E-04	5.847	0.585	0.095	0.009	313.7	0.1
B14	5.82E-03	5.83E-04	5.623	0.563	0.091	0.009	312.7	0.1
C01	5.23E-03	5.24E-04	5.050	0.505	0.082	0.008	314.3	0.1
C02	5.14E-03	5.14E-04	4.959	0.496	0.080	0.008	312.6	0.2
C03	4.98E-03	4.98E-04	4.808	0.481	0.078	0.008	312.9	0.0
C04	4.88E-03	4.88E-04	4.711	0.471	0.076	0.008	311.6	0.0
C05	4.89E-03	4.89E-04	4.722	0.472	0.076	0.008	311.5	0.1
C06	5.10E-03	5.11E-04	4.923	0.493	0.080	0.008	312.3	0.0
C07	5.41E-03	5.42E-04	5.224	0.523	0.085	0.008	313.6	0.0
C08	6.22E-03	6.22E-04	6.002	0.601	0.097	0.010	316.4	0.1
C09	7.77E-03	7.77E-04	7.500	0.750	0.121	0.012	322.0	0.2
C10	8.64E-03	8.64E-04	8.340	0.834	0.135	0.014	324.2	0.1
C11	8.32E-03	8.32E-04	8.031	0.804	0.130	0.013	322.3	0.1
C12	6.70E-03	6.70E-04	6.470	0.647	0.105	0.010	316.8	0.1
C13	6.33E-03	6.34E-04	6.112	0.612	0.099	0.010	315.0	0.0
C14	5.90E-03	5.90E-04	5.691	0.570	0.092	0.009	312.8	0.1
C15	5.67E-03	5.67E-04	5.476	0.548	0.089	0.009	312.2	0.2
C16	5.58E-03	5.59E-04	5.391	0.540	0.087	0.009	311.8	0.1
C17	5.67E-03	5.67E-04	5.476	0.548	0.089	0.009	312.2	0.1
C18	5.99E-03	5.99E-04	5.780	0.579	0.094	0.009	313.0	0.2
C19	6.19E-03	6.20E-04	5.980	0.599	0.097	0.010	314.8	0.1
D02	5.25E-03	5.26E-04	5.070	0.508	0.082	0.008	313.0	0.0
D03	4.89E-03	4.90E-04	4.721	0.473	0.076	0.008	311.8	0.0
D04	4.80E-03	4.81E-04	4.632	0.464	0.075	0.008	311.4	0.0
D13	6.01E-03	6.03E-04	5.807	0.582	0.094	0.009	313.6	0.1
D14	5.69E-03	5.70E-04	5.495	0.550	0.089	0.009	312.5	0.1
E03	5.02E-03	5.03E-04	4.845	0.486	0.078	0.008	312.2	0.2
F20	1.77E-04	1.80E-05	0.171	0.017	0.003	0.000	294.7	0.1
F21	1.52E-04	1.54E-05	0.147	0.015	0.002	0.000	292.9	0.1
F22	2.49E-04	2.59E-05	0.241	0.025	0.004	0.000	294.7	0.2
F23	5.74E-05	5.88E-06	0.055	0.006	0.001	0.000	294.7	0.1
F24	5.93E-05	6.18E-06	0.057	0.006	0.001	0.000	294.6	0.0
F25	4.32E-05	4.36E-06	0.042	0.004	0.001	0.000	294.6	0.1

Table C - 98. Run 3020 data, Mach 10 nozzle, $Re_{\infty} = 1.9\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.69E-03	4.70E-04	4.522	0.453	0.073	0.007	312.5	0.0
B02	4.83E-03	4.84E-04	4.653	0.466	0.075	0.008	312.9	0.1
B03	4.63E-03	4.64E-04	4.460	0.447	0.072	0.007	312.3	0.1
B04	4.50E-03	4.51E-04	4.337	0.434	0.070	0.007	311.7	0.1
B13	6.43E-03	6.43E-04	6.191	0.619	0.100	0.010	314.8	0.1
B14	6.04E-03	6.04E-04	5.817	0.582	0.094	0.009	313.7	0.1
C01	4.78E-03	4.80E-04	4.606	0.462	0.075	0.007	314.6	0.0
C02	4.72E-03	4.73E-04	4.545	0.456	0.074	0.007	312.9	0.0
C03	4.56E-03	4.58E-04	4.397	0.441	0.071	0.007	313.2	0.2
C04	4.53E-03	4.55E-04	4.366	0.438	0.071	0.007	312.0	0.1
C05	4.49E-03	4.51E-04	4.330	0.434	0.070	0.007	311.9	0.1
C06	4.71E-03	4.72E-04	4.536	0.455	0.074	0.007	312.7	0.1
C07	5.02E-03	5.03E-04	4.833	0.485	0.078	0.008	313.9	0.1
C08	5.79E-03	5.81E-04	5.580	0.560	0.090	0.009	316.9	0.1
C09	7.44E-03	7.45E-04	7.169	0.718	0.116	0.012	322.8	0.1
C10	8.58E-03	8.58E-04	8.268	0.827	0.134	0.013	325.3	0.1
C11	8.60E-03	8.60E-04	8.283	0.828	0.134	0.013	323.6	0.1
C12	7.23E-03	7.25E-04	6.960	0.698	0.113	0.011	318.2	0.2
C13	6.73E-03	6.74E-04	6.481	0.649	0.105	0.011	316.2	0.1
C14	6.20E-03	6.21E-04	5.970	0.598	0.097	0.010	313.8	0.2
C15	5.92E-03	5.92E-04	5.699	0.570	0.092	0.009	313.2	0.1
C16	5.80E-03	5.81E-04	5.587	0.559	0.091	0.009	312.8	0.2
C17	6.00E-03	6.00E-04	5.776	0.578	0.094	0.009	313.2	0.0
C18	6.37E-03	6.39E-04	6.139	0.615	0.100	0.010	314.1	0.0
C19	6.68E-03	6.71E-04	6.436	0.647	0.104	0.010	316.1	0.1
D02	4.88E-03	4.89E-04	4.700	0.471	0.076	0.008	313.3	0.0
D03	4.56E-03	4.58E-04	4.397	0.441	0.071	0.007	312.1	0.2
D04	4.49E-03	4.50E-04	4.324	0.433	0.070	0.007	311.7	0.0
D13	6.42E-03	6.43E-04	6.187	0.619	0.100	0.010	314.8	0.1
D14	6.03E-03	6.03E-04	5.807	0.581	0.094	0.009	313.6	0.2
E03	4.68E-03	4.69E-04	4.508	0.452	0.073	0.007	312.5	0.1
F20	1.79E-04	1.79E-05	0.172	0.017	0.003	0.000	294.7	0.1
F21	1.46E-04	1.46E-05	0.141	0.014	0.002	0.000	293.0	0.1
F22	2.31E-04	2.32E-05	0.223	0.022	0.004	0.000	294.8	0.2
F23	8.05E-05	9.26E-06	0.078	0.009	0.001	0.000	294.7	0.0
F24	4.39E-05	4.42E-06	0.042	0.004	0.001	0.000	294.6	0.0
F25	4.79E-05	5.12E-06	0.046	0.005	0.001	0.000	294.6	0.1

Table C - 99. Run 3020 data, Mach 10 nozzle, $Re_{\infty} = 1.9 \times 10^6$/ft, $\alpha = 12°$.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.37E-03	4.39E-04	4.189	0.420	0.068	0.007	312.7	0.1
B02	4.44E-03	4.46E-04	4.255	0.427	0.069	0.007	313.1	0.1
B03	4.25E-03	4.26E-04	4.069	0.409	0.066	0.007	312.4	0.2
B04	4.16E-03	4.18E-04	3.988	0.401	0.065	0.007	311.9	0.0
B13	6.70E-03	6.70E-04	6.412	0.642	0.104	0.010	315.8	0.1
B14	6.37E-03	6.38E-04	6.096	0.611	0.099	0.010	314.7	0.1
C01	4.38E-03	4.39E-04	4.198	0.421	0.068	0.007	314.8	0.1
C02	4.33E-03	4.34E-04	4.144	0.416	0.067	0.007	313.0	0.1
C03	4.16E-03	4.18E-04	3.989	0.401	0.065	0.007	313.3	0.1
C04	4.10E-03	4.12E-04	3.929	0.394	0.064	0.006	312.0	0.0
C05	4.13E-03	4.15E-04	3.960	0.397	0.064	0.006	312.0	0.1
C06	4.32E-03	4.33E-04	4.138	0.415	0.067	0.007	312.8	0.1
C07	4.59E-03	4.60E-04	4.399	0.441	0.072	0.007	314.1	0.1
C08	5.32E-03	5.34E-04	5.100	0.511	0.083	0.008	317.1	0.1
C09	7.15E-03	7.15E-04	6.846	0.685	0.111	0.011	323.4	0.1
C10	8.50E-03	8.50E-04	8.142	0.814	0.132	0.013	326.2	0.1
C11	8.64E-03	8.64E-04	8.271	0.827	0.135	0.013	324.8	0.0
C12	7.67E-03	7.67E-04	7.342	0.734	0.119	0.012	319.5	0.1
C13	7.12E-03	7.12E-04	6.817	0.682	0.111	0.011	317.3	0.1
C14	6.54E-03	6.54E-04	6.262	0.627	0.102	0.010	314.9	0.1
C15	6.15E-03	6.15E-04	5.887	0.589	0.096	0.010	314.1	0.1
C16	6.05E-03	6.06E-04	5.799	0.580	0.094	0.009	313.7	0.0
C17	6.34E-03	6.34E-04	6.072	0.607	0.099	0.010	314.2	0.0
C18	6.91E-03	6.91E-04	6.615	0.662	0.108	0.011	315.4	0.2
C19	7.36E-03	7.38E-04	7.053	0.706	0.115	0.011	317.5	0.1
D02	4.54E-03	4.55E-04	4.344	0.436	0.071	0.007	313.4	0.2
D03	4.20E-03	4.21E-04	4.021	0.403	0.065	0.007	312.2	0.0
D04	4.13E-03	4.14E-04	3.951	0.397	0.064	0.006	311.9	0.1
D13	6.79E-03	6.79E-04	6.501	0.650	0.106	0.011	315.8	0.1
D14	6.39E-03	6.40E-04	6.116	0.613	0.099	0.010	314.6	0.0
E03	4.36E-03	4.37E-04	4.176	0.419	0.068	0.007	312.6	0.1
F20	1.45E-04	1.52E-05	0.138	0.015	0.002	0.000	294.7	0.1
F21	1.61E-04	1.62E-05	0.155	0.016	0.003	0.000	293.0	0.0
F22	2.24E-04	2.27E-05	0.215	0.022	0.003	0.000	294.9	0.1
F23	1.38E-04	1.39E-05	0.132	0.013	0.002	0.000	294.8	0.1
F24	7.57E-05	8.23E-06	0.073	0.008	0.001	0.000	294.6	0.1
F25	5.80E-05	6.79E-06	0.056	0.006	0.001	0.000	294.6	0.1

Table C - 100. Run 3020 data, Mach 10 nozzle, $Re_{\infty} = 1.9\times10^{6}$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)^(1/2)	ΔSt×(ReD)^(1/2)	St×(ReD)^(1/5)	ΔSt×(ReD)^(1/5)	Tw (K)	ΔTw (K)
A03	3.96E-03	3.97E-04	3.791	0.380	0.062	0.006	312.7	0.1
B02	3.99E-03	4.01E-04	3.820	0.384	0.062	0.006	313.1	0.2
B03	3.81E-03	3.83E-04	3.648	0.367	0.059	0.006	312.4	0.1
B04	3.73E-03	3.74E-04	3.569	0.358	0.058	0.006	311.9	0.1
B13	6.79E-03	6.79E-04	6.502	0.650	0.106	0.011	316.7	0.1
B14	6.59E-03	6.59E-04	6.310	0.631	0.103	0.010	315.7	0.1
C01	3.95E-03	3.97E-04	3.784	0.380	0.062	0.006	314.7	0.1
C02	3.86E-03	3.88E-04	3.699	0.372	0.060	0.006	313.0	0.0
C03	3.74E-03	3.75E-04	3.579	0.359	0.058	0.006	313.2	0.1
C04	3.70E-03	3.72E-04	3.543	0.357	0.058	0.006	312.0	0.1
C05	3.69E-03	3.71E-04	3.534	0.355	0.057	0.006	311.9	0.0
C06	3.90E-03	3.92E-04	3.731	0.375	0.061	0.006	312.8	0.0
C07	4.18E-03	4.20E-04	4.003	0.403	0.065	0.007	314.1	0.0
C08	4.84E-03	4.87E-04	4.635	0.466	0.075	0.008	317.1	0.2
C09	6.79E-03	6.80E-04	6.504	0.651	0.106	0.011	323.8	0.1
C10	8.27E-03	8.27E-04	7.922	0.793	0.129	0.013	327.0	0.1
C11	8.57E-03	8.57E-04	8.205	0.821	0.133	0.013	325.8	0.0
C12	7.54E-03	7.54E-04	7.221	0.722	0.117	0.012	320.6	0.1
C13	7.26E-03	7.26E-04	6.956	0.696	0.113	0.011	318.4	0.1
C14	6.95E-03	6.96E-04	6.660	0.667	0.108	0.011	316.0	0.1
C15	6.51E-03	6.51E-04	6.238	0.624	0.101	0.010	315.1	0.1
C16	6.27E-03	6.27E-04	6.003	0.600	0.098	0.010	314.6	0.1
C17	6.53E-03	6.53E-04	6.255	0.626	0.102	0.010	315.2	0.1
C18	7.21E-03	7.21E-04	6.902	0.691	0.112	0.011	316.5	0.1
C19	7.80E-03	7.81E-04	7.469	0.748	0.121	0.012	318.8	0.1
D02	4.07E-03	4.09E-04	3.901	0.392	0.063	0.006	313.4	0.1
D03	3.76E-03	3.78E-04	3.602	0.362	0.059	0.006	312.2	0.1
D04	3.66E-03	3.68E-04	3.511	0.353	0.057	0.006	311.8	0.1
D13	6.91E-03	6.91E-04	6.624	0.662	0.108	0.011	316.8	0.1
D14	6.58E-03	6.58E-04	6.303	0.630	0.103	0.010	315.5	0.0
E03	3.92E-03	3.94E-04	3.752	0.377	0.061	0.006	312.6	0.1
F20	1.30E-04	1.59E-05	0.125	0.015	0.002	0.000	294.7	0.1
F21	1.45E-04	1.58E-05	0.139	0.015	0.002	0.000	293.0	0.1
F22	1.88E-04	1.91E-05	0.180	0.018	0.003	0.000	294.9	0.1
F23	1.53E-04	1.70E-05	0.147	0.016	0.002	0.000	294.8	0.1
F24	9.43E-05	9.48E-06	0.090	0.009	0.001	0.000	294.6	0.2
F25	7.61E-05	7.75E-06	0.073	0.007	0.001	0.000	294.6	0.1

Table C - 101. Run 3020 data, Mach 10 nozzle, $Re_\infty = 1.9\times10^6$/ft, α = 20°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.59E-03	3.62E-04	3.442	0.347	0.056	0.006	312.6	0.1
B02	3.56E-03	3.57E-04	3.408	0.342	0.055	0.006	312.9	0.1
B03	3.42E-03	3.44E-04	3.280	0.329	0.053	0.005	312.3	0.1
B04	3.40E-03	3.42E-04	3.259	0.327	0.053	0.005	311.8	0.1
B13	6.77E-03	6.77E-04	6.487	0.649	0.105	0.011	317.6	0.1
B14	6.57E-03	6.57E-04	6.292	0.629	0.102	0.010	316.6	0.1
C01	3.49E-03	3.51E-04	3.346	0.337	0.054	0.005	314.6	0.1
C02	3.43E-03	3.45E-04	3.284	0.330	0.053	0.005	312.8	0.2
C03	3.32E-03	3.33E-04	3.178	0.319	0.052	0.005	313.1	0.1
C04	3.29E-03	3.29E-04	3.148	0.316	0.051	0.005	311.8	0.1
C05	3.35E-03	3.36E-04	3.207	0.322	0.052	0.005	311.8	0.1
C06	3.53E-03	3.53E-04	3.378	0.338	0.055	0.006	312.7	0.1
C07	3.77E-03	3.78E-04	3.614	0.362	0.059	0.006	314.0	0.0
C08	4.34E-03	4.35E-04	4.157	0.417	0.068	0.007	317.0	0.1
C09	6.45E-03	6.46E-04	6.181	0.619	0.101	0.010	324.1	0.0
C10	8.02E-03	8.02E-04	7.685	0.769	0.125	0.013	327.7	0.1
C11	8.59E-03	8.59E-04	8.225	0.823	0.134	0.013	326.8	0.0
C12	7.52E-03	7.52E-04	7.203	0.720	0.117	0.012	321.6	0.1
C13	7.12E-03	7.13E-04	6.825	0.683	0.111	0.011	319.3	0.0
C14	6.82E-03	6.83E-04	6.530	0.654	0.106	0.011	317.0	0.0
C15	6.56E-03	6.56E-04	6.280	0.628	0.102	0.010	316.0	0.1
C16	6.54E-03	6.55E-04	6.266	0.628	0.102	0.010	315.6	0.2
C17	6.85E-03	6.85E-04	6.560	0.657	0.107	0.011	316.3	0.1
C18	7.59E-03	7.60E-04	7.272	0.728	0.118	0.012	317.8	0.1
C19	8.38E-03	8.40E-04	8.031	0.805	0.131	0.013	320.5	0.2
D02	3.60E-03	3.62E-04	3.452	0.347	0.056	0.006	313.3	0.0
D03	3.36E-03	3.38E-04	3.223	0.324	0.052	0.005	312.1	0.1
D04	3.34E-03	3.36E-04	3.204	0.322	0.052	0.005	311.7	0.1
D13	6.77E-03	6.77E-04	6.485	0.649	0.105	0.011	317.7	0.1
D14	6.54E-03	6.54E-04	6.264	0.626	0.102	0.010	316.4	0.1
E03	3.50E-03	3.52E-04	3.349	0.337	0.054	0.005	312.5	0.1
F20	2.72E-04	2.75E-05	0.261	0.026	0.004	0.000	294.8	0.1
F21	2.82E-04	2.94E-05	0.271	0.028	0.004	0.000	293.1	0.0
F22	2.61E-04	2.64E-05	0.250	0.025	0.004	0.000	294.9	0.0
F23	3.12E-04	3.52E-05	0.299	0.034	0.005	0.001	294.9	0.1
F24	1.62E-04	2.08E-05	0.155	0.020	0.003	0.000	294.7	0.1
F25	1.73E-04	2.21E-05	0.165	0.021	0.003	0.000	294.7	0.1

Table C - 102. Run 3020 data, Mach 10 nozzle, $Re_{\infty} = 1.9\times10^6$/ft, α = 24°.

Gauge	St	ΔSt	St×(ReD)^(1/2)	ΔSt×(ReD)^(1/2)	St×(ReD)^(1/5)	ΔSt×(ReD)^(1/5)	Tw (K)	ΔTw (K)
A03	3.15E-03	3.16E-04	3.023	0.303	0.049	0.005	312.4	0.2
B02	3.13E-03	3.14E-04	3.007	0.301	0.049	0.005	312.7	0.1
B03	3.06E-03	3.06E-04	2.934	0.294	0.048	0.005	312.0	0.1
B04	3.05E-03	3.06E-04	2.930	0.293	0.048	0.005	311.6	0.0
B13	6.58E-03	6.58E-04	6.313	0.631	0.103	0.010	318.7	0.0
B14	6.53E-03	6.53E-04	6.267	0.627	0.102	0.010	317.8	0.1
C01	3.01E-03	3.03E-04	2.887	0.290	0.047	0.005	314.3	0.0
C02	2.97E-03	2.99E-04	2.848	0.287	0.046	0.005	312.5	0.1
C03	2.94E-03	2.95E-04	2.816	0.283	0.046	0.005	312.8	0.1
C04	2.93E-03	2.94E-04	2.812	0.282	0.046	0.005	311.6	0.2
C05	3.01E-03	3.02E-04	2.891	0.289	0.047	0.005	311.6	0.1
C06	3.20E-03	3.20E-04	3.065	0.307	0.050	0.005	312.5	0.1
C07	3.40E-03	3.40E-04	3.258	0.326	0.053	0.005	313.8	0.1
C08	3.73E-03	3.77E-04	3.581	0.362	0.058	0.006	316.7	0.1
C09	6.05E-03	6.05E-04	5.802	0.581	0.094	0.009	324.5	0.1
C10	7.64E-03	7.65E-04	7.334	0.734	0.119	0.012	328.5	0.2
C11	8.35E-03	8.35E-04	8.011	0.801	0.130	0.013	328.1	0.2
C12	7.35E-03	7.35E-04	7.048	0.705	0.115	0.011	322.9	0.2
C13	6.95E-03	6.95E-04	6.670	0.667	0.108	0.011	320.4	0.0
C14	6.64E-03	6.64E-04	6.371	0.637	0.104	0.010	318.1	0.1
C15	6.71E-03	6.72E-04	6.442	0.644	0.105	0.010	317.4	0.1
C16	6.74E-03	6.75E-04	6.463	0.647	0.105	0.011	317.1	0.1
C17	7.14E-03	7.18E-04	6.849	0.688	0.111	0.011	317.8	0.2
C18	8.03E-03	8.04E-04	7.707	0.771	0.125	0.013	319.8	0.3
C19	9.20E-03	9.21E-04	8.830	0.884	0.143	0.014	323.1	0.3
D02	3.17E-03	3.19E-04	3.041	0.306	0.049	0.005	313.0	0.1
D03	2.99E-03	3.00E-04	2.873	0.288	0.047	0.005	311.8	0.1
D04	3.00E-03	3.01E-04	2.880	0.289	0.047	0.005	311.5	0.1
D13	6.73E-03	6.73E-04	6.453	0.646	0.105	0.010	318.8	0.0
D14	6.32E-03	6.32E-04	6.059	0.606	0.098	0.010	317.5	0.0
E03	3.10E-03	3.11E-04	2.975	0.298	0.048	0.005	312.3	0.1
F20	2.78E-04	2.78E-05	0.267	0.027	0.004	0.000	295.0	0.0
F21	3.94E-04	4.10E-05	0.378	0.039	0.006	0.001	293.3	0.0
F22	3.23E-04	3.25E-05	0.310	0.031	0.005	0.001	295.1	0.1
F23	6.10E-04	6.50E-05	0.585	0.062	0.010	0.001	295.3	0.1
F24	3.32E-04	3.59E-05	0.318	0.034	0.005	0.001	294.9	0.1
F25	2.94E-04	3.07E-05	0.282	0.029	0.005	0.000	294.9	0.1

Table C - 103. Run 3022 data, Mach 10 nozzle, $Re_\infty = 4.6\times10^6$/ft, $\alpha = 0°$.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.35E-03	3.35E-04	5.189	0.520	0.063	0.006	308.7	0.8
B02	3.45E-03	3.46E-04	5.349	0.536	0.065	0.007	309.1	0.8
B03	3.30E-03	3.30E-04	5.114	0.512	0.062	0.006	308.5	0.8
B04	3.18E-03	3.19E-04	4.928	0.493	0.060	0.006	307.9	0.8
B13	3.55E-03	3.56E-04	5.493	0.551	0.067	0.007	309.5	0.9
B14	3.38E-03	3.40E-04	5.239	0.527	0.064	0.006	308.7	0.9
C01	3.72E-03	3.74E-04	5.766	0.580	0.070	0.007	311.0	0.9
C02	3.47E-03	3.48E-04	5.372	0.539	0.065	0.007	309.2	0.8
C03	3.34E-03	3.34E-04	5.165	0.518	0.063	0.006	309.4	0.8
C04	3.21E-03	3.22E-04	4.975	0.498	0.061	0.006	308.1	0.8
C05	3.17E-03	3.18E-04	4.911	0.492	0.060	0.006	307.8	0.8
C06	3.30E-03	3.30E-04	5.116	0.512	0.062	0.006	308.4	0.8
C07	3.53E-03	3.54E-04	5.471	0.547	0.067	0.007	309.6	0.9
C08	4.03E-03	4.04E-04	6.235	0.625	0.076	0.008	311.9	1.0
C09	4.91E-03	4.91E-04	7.596	0.761	0.093	0.009	316.5	1.2
C10	5.34E-03	5.41E-04	8.276	0.838	0.101	0.010	318.4	1.4
C11	4.93E-03	4.95E-04	7.629	0.766	0.093	0.009	316.4	1.3
C12	3.91E-03	3.95E-04	6.062	0.611	0.074	0.007	312.0	1.0
C13	3.62E-03	3.66E-04	5.603	0.567	0.068	0.007	310.5	0.9
C14	3.33E-03	3.35E-04	5.149	0.518	0.063	0.006	308.4	0.8
C15	3.24E-03	3.25E-04	5.022	0.504	0.061	0.006	308.0	0.8
C16	3.17E-03	3.18E-04	4.916	0.492	0.060	0.006	307.7	0.8
C17	3.27E-03	3.28E-04	5.067	0.508	0.062	0.006	308.2	0.8
C18	3.44E-03	3.44E-04	5.322	0.532	0.065	0.006	308.8	0.9
C19	3.69E-03	3.69E-04	5.708	0.571	0.070	0.007	310.6	1.0
D02	3.52E-03	3.53E-04	5.454	0.547	0.066	0.007	309.4	0.9
D03	3.29E-03	3.29E-04	5.092	0.510	0.062	0.006	308.4	0.8
D04	3.17E-03	3.18E-04	4.910	0.493	0.060	0.006	307.8	0.8
D13	3.50E-03	3.53E-04	5.424	0.546	0.066	0.007	309.3	0.9
D14	3.32E-03	3.34E-04	5.144	0.518	0.063	0.006	308.5	0.8
E03	3.35E-03	3.35E-04	5.193	0.519	0.063	0.006	308.7	0.8
F20	4.97E-05	1.19E-05	0.077	0.018	0.001	0.000	293.1	0.1
F21	4.85E-05	6.53E-06	0.075	0.010	0.001	0.000	291.6	0.2
F22	7.34E-05	1.24E-05	0.114	0.019	0.001	0.000	293.1	0.1
F23	1.11E-04	1.55E-05	0.173	0.024	0.002	0.000	293.4	0.1
F24	6.28E-05	7.61E-06	0.097	0.012	0.001	0.000	293.1	0.3
F25	6.79E-05	1.31E-05	0.105	0.020	0.001	0.000	293.2	0.1

Table C - 104. Run 3022 data, Mach 10 nozzle, $Re_\infty = 4.6\times10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.12E-03	3.13E-04	4.766	0.477	0.059	0.006	311.3	0.2
B02	3.17E-03	3.18E-04	4.844	0.486	0.060	0.006	311.8	0.1
B03	3.05E-03	3.06E-04	4.662	0.467	0.057	0.006	311.1	0.0
B04	2.95E-03	2.95E-04	4.499	0.451	0.055	0.006	310.4	0.1
B13	3.79E-03	3.80E-04	5.791	0.579	0.071	0.007	313.1	0.2
B14	3.63E-03	3.63E-04	5.539	0.554	0.068	0.007	312.2	0.0
C01	3.38E-03	3.39E-04	5.164	0.518	0.063	0.006	314.0	0.2
C02	3.19E-03	3.20E-04	4.875	0.489	0.060	0.006	311.8	0.1
C03	3.09E-03	3.10E-04	4.726	0.474	0.058	0.006	312.0	0.0
C04	3.00E-03	3.01E-04	4.588	0.460	0.056	0.006	310.6	0.0
C05	2.98E-03	2.98E-04	4.547	0.456	0.056	0.006	310.4	0.2
C06	3.11E-03	3.11E-04	4.743	0.476	0.058	0.006	311.1	0.2
C07	3.33E-03	3.34E-04	5.085	0.510	0.063	0.006	312.5	0.1
C08	3.84E-03	3.84E-04	5.857	0.587	0.072	0.007	315.3	0.1
C09	4.80E-03	4.80E-04	7.326	0.733	0.090	0.009	320.9	0.2
C10	5.39E-03	5.39E-04	8.225	0.823	0.101	0.010	323.5	0.2
C11	5.17E-03	5.17E-04	7.895	0.790	0.097	0.010	321.5	0.2
C12	4.25E-03	4.26E-04	6.485	0.650	0.080	0.008	316.3	0.1
C13	3.97E-03	3.97E-04	6.056	0.606	0.074	0.007	314.3	0.2
C14	3.65E-03	3.65E-04	5.571	0.558	0.068	0.007	312.0	0.0
C15	3.50E-03	3.51E-04	5.348	0.535	0.066	0.007	311.4	0.1
C16	3.43E-03	3.43E-04	5.240	0.524	0.064	0.006	311.0	0.1
C17	3.54E-03	3.54E-04	5.405	0.541	0.066	0.007	311.6	0.1
C18	3.75E-03	3.75E-04	5.721	0.573	0.070	0.007	312.4	0.2
C19	4.02E-03	4.03E-04	6.132	0.614	0.075	0.008	314.6	0.2
D02	3.25E-03	3.26E-04	4.967	0.498	0.061	0.006	312.1	0.1
D03	3.03E-03	3.04E-04	4.630	0.464	0.057	0.006	310.9	0.1
D04	2.96E-03	2.96E-04	4.522	0.453	0.056	0.006	310.3	0.1
D13	3.83E-03	3.84E-04	5.852	0.586	0.072	0.007	313.0	0.2
D14	3.63E-03	3.63E-04	5.545	0.555	0.068	0.007	312.0	0.2
E03	3.12E-03	3.12E-04	4.767	0.477	0.059	0.006	311.3	0.1
F20	1.68E-04	1.89E-05	0.257	0.029	0.003	0.000	293.3	0.1
F21	1.10E-04	1.18E-05	0.168	0.018	0.002	0.000	291.8	0.1
F22	2.42E-04	2.51E-05	0.370	0.038	0.005	0.000	293.5	0.1
F23	5.59E-05	6.46E-06	0.085	0.010	0.001	0.000	293.3	0.1
F24	4.19E-05	6.07E-06	0.064	0.009	0.001	0.000	293.1	0.1
F25	3.55E-05	3.56E-06	0.054	0.005	0.001	0.000	293.2	0.1

Table C - 105. Run 3022 data, Mach 10 nozzle, $Re_\infty = 4.6\times10^6$/ft, α = 8.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.93E-03	2.93E-04	4.463	0.447	0.055	0.006	312.0	0.0
B02	2.95E-03	2.96E-04	4.497	0.451	0.055	0.006	312.4	0.1
B03	2.87E-03	2.87E-04	4.372	0.438	0.054	0.005	311.8	0.1
B04	2.79E-03	2.80E-04	4.254	0.426	0.052	0.005	311.1	0.0
B13	4.04E-03	4.04E-04	6.148	0.616	0.076	0.008	314.9	0.2
B14	3.84E-03	3.85E-04	5.855	0.586	0.072	0.007	313.9	0.2
C01	3.12E-03	3.12E-04	4.750	0.476	0.058	0.006	314.7	0.0
C02	2.97E-03	2.97E-04	4.519	0.453	0.056	0.006	312.5	0.1
C03	2.88E-03	2.89E-04	4.391	0.440	0.054	0.005	312.6	0.1
C04	2.80E-03	2.81E-04	4.271	0.428	0.053	0.005	311.3	0.0
C05	2.79E-03	2.79E-04	4.243	0.425	0.052	0.005	311.1	0.1
C06	2.92E-03	2.92E-04	4.448	0.445	0.055	0.005	311.8	0.1
C07	3.13E-03	3.13E-04	4.765	0.477	0.059	0.006	313.3	0.1
C08	3.61E-03	3.61E-04	5.500	0.550	0.068	0.007	316.2	0.1
C09	4.72E-03	4.72E-04	7.188	0.719	0.088	0.009	322.5	0.2
C10	5.43E-03	5.43E-04	8.278	0.828	0.102	0.010	325.5	0.2
C11	5.41E-03	5.41E-04	8.240	0.824	0.101	0.010	323.9	0.1
C12	4.65E-03	4.66E-04	7.084	0.710	0.087	0.009	318.6	0.2
C13	4.28E-03	4.31E-04	6.522	0.656	0.080	0.008	316.4	0.3
C14	3.86E-03	3.87E-04	5.883	0.589	0.072	0.007	313.8	0.2
C15	3.68E-03	3.68E-04	5.601	0.561	0.069	0.007	313.1	0.0
C16	3.62E-03	3.62E-04	5.509	0.552	0.068	0.007	312.6	0.2
C17	3.78E-03	3.78E-04	5.755	0.576	0.071	0.007	313.3	0.2
C18	4.03E-03	4.04E-04	6.139	0.615	0.076	0.008	314.4	0.1
C19	4.36E-03	4.37E-04	6.646	0.666	0.082	0.008	316.8	0.2
D02	3.03E-03	3.04E-04	4.617	0.463	0.057	0.006	312.8	0.0
D03	2.82E-03	2.82E-04	4.295	0.430	0.053	0.005	311.5	0.0
D04	2.75E-03	2.75E-04	4.186	0.420	0.052	0.005	311.0	0.0
D13	4.12E-03	4.13E-04	6.278	0.629	0.077	0.008	315.0	0.1
D14	3.84E-03	3.84E-04	5.852	0.585	0.072	0.007	313.8	0.1
E03	2.88E-03	2.89E-04	4.395	0.441	0.054	0.005	312.0	0.1
F20	1.62E-04	1.72E-05	0.246	0.026	0.003	0.000	293.4	0.0
F21	1.62E-04	1.63E-05	0.247	0.025	0.003	0.000	292.0	0.1
F22	2.40E-04	2.40E-05	0.366	0.037	0.005	0.000	293.7	0.0
F23	5.39E-05	5.87E-06	0.082	0.009	0.001	0.000	293.3	0.1
F24	5.84E-05	6.68E-06	0.089	0.010	0.001	0.000	293.2	0.1
F25	3.93E-05	4.22E-06	0.060	0.006	0.001	0.000	293.2	0.1

Table C - 106. Run 3022 data, Mach 10 nozzle, $Re_\infty = 4.6\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.74E-03	2.74E-04	4.149	0.416	0.051	0.005	312.5	0.0
B02	2.76E-03	2.76E-04	4.182	0.419	0.052	0.005	312.8	0.2
B03	2.67E-03	2.67E-04	4.041	0.405	0.050	0.005	312.2	0.1
B04	2.59E-03	2.59E-04	3.921	0.393	0.048	0.005	311.5	0.0
B13	4.42E-03	4.43E-04	6.705	0.672	0.083	0.008	316.9	0.2
B14	4.05E-03	4.05E-04	6.142	0.615	0.076	0.008	315.5	0.2
C01	2.92E-03	2.92E-04	4.420	0.443	0.055	0.005	315.1	0.0
C02	2.76E-03	2.77E-04	4.184	0.420	0.052	0.005	312.9	0.0
C03	2.67E-03	2.67E-04	4.041	0.405	0.050	0.005	313.0	0.1
C04	2.61E-03	2.61E-04	3.952	0.396	0.049	0.005	311.7	0.1
C05	2.59E-03	2.60E-04	3.925	0.394	0.048	0.005	311.5	0.1
C06	2.71E-03	2.72E-04	4.108	0.412	0.051	0.005	312.3	0.0
C07	2.90E-03	2.91E-04	4.402	0.442	0.054	0.005	313.7	0.1
C08	3.37E-03	3.38E-04	5.106	0.513	0.063	0.006	316.9	0.1
C09	4.57E-03	4.58E-04	6.929	0.694	0.086	0.009	323.7	0.1
C10	5.42E-03	5.42E-04	8.220	0.822	0.102	0.010	327.3	0.1
C11	5.54E-03	5.54E-04	8.399	0.840	0.104	0.010	325.9	0.1
C12	4.89E-03	4.89E-04	7.405	0.741	0.091	0.009	320.7	0.2
C13	4.80E-03	4.81E-04	7.279	0.729	0.090	0.009	318.6	0.2
C14	4.22E-03	4.23E-04	6.402	0.641	0.079	0.008	315.6	0.2
C15	4.00E-03	4.01E-04	6.059	0.607	0.075	0.007	314.8	0.2
C16	3.82E-03	3.83E-04	5.797	0.580	0.072	0.007	314.2	0.0
C17	3.94E-03	3.95E-04	5.980	0.598	0.074	0.007	314.9	0.1
C18	4.28E-03	4.29E-04	6.492	0.650	0.080	0.008	316.2	0.2
C19	4.70E-03	4.71E-04	7.121	0.713	0.088	0.009	318.9	0.2
D02	2.82E-03	2.83E-04	4.271	0.428	0.053	0.005	313.2	0.0
D03	2.64E-03	2.65E-04	4.002	0.401	0.049	0.005	312.0	0.1
D04	2.58E-03	2.58E-04	3.906	0.392	0.048	0.005	311.4	0.1
D13	4.37E-03	4.37E-04	6.622	0.662	0.082	0.008	316.8	0.2
D14	4.07E-03	4.08E-04	6.171	0.618	0.076	0.008	315.4	0.2
E03	2.72E-03	2.72E-04	4.124	0.413	0.051	0.005	312.4	0.1
F20	8.92E-05	9.89E-06	0.135	0.015	0.002	0.000	293.4	0.1
F21	9.03E-05	1.06E-05	0.137	0.016	0.002	0.000	292.0	0.1
F22	1.74E-04	2.18E-05	0.263	0.033	0.003	0.000	293.8	0.0
F23	7.56E-05	9.42E-06	0.115	0.014	0.001	0.000	293.4	0.1
F24	4.72E-05	6.09E-06	0.072	0.009	0.001	0.000	293.2	0.1
F25	3.56E-05	4.41E-06	0.054	0.007	0.001	0.000	293.2	0.1

Table C - 107. Run 3022 data, Mach 10 nozzle, $Re_\infty = 4.6\times10^6$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.49E-03	2.50E-04	3.757	0.378	0.046	0.005	312.7	0.0
B02	2.49E-03	2.51E-04	3.759	0.379	0.046	0.005	313.0	0.2
B03	2.41E-03	2.42E-04	3.639	0.366	0.045	0.005	312.3	0.0
B04	2.34E-03	2.36E-04	3.539	0.356	0.044	0.004	311.7	0.1
B13	4.49E-03	4.49E-04	6.790	0.679	0.084	0.008	318.6	0.1
B14	4.16E-03	4.16E-04	6.291	0.629	0.078	0.008	317.1	0.2
C01	2.63E-03	2.65E-04	3.977	0.401	0.049	0.005	315.4	0.0
C02	2.47E-03	2.49E-04	3.740	0.377	0.046	0.005	313.0	0.0
C03	2.39E-03	2.41E-04	3.605	0.364	0.045	0.005	313.2	0.2
C04	2.32E-03	2.35E-04	3.510	0.355	0.043	0.004	311.8	0.2
C05	2.31E-03	2.33E-04	3.484	0.352	0.043	0.004	311.6	0.1
C06	2.42E-03	2.44E-04	3.655	0.369	0.045	0.005	312.4	0.0
C07	2.58E-03	2.60E-04	3.901	0.393	0.048	0.005	313.9	0.1
C08	3.01E-03	3.03E-04	4.551	0.458	0.056	0.006	317.1	0.2
C09	4.33E-03	4.33E-04	6.538	0.655	0.081	0.008	324.6	0.1
C10	5.30E-03	5.31E-04	8.016	0.802	0.099	0.010	328.7	0.2
C11	5.56E-03	5.56E-04	8.405	0.841	0.104	0.010	327.7	0.1
C12	4.91E-03	4.91E-04	7.424	0.742	0.092	0.009	322.6	0.2
C13	4.68E-03	4.69E-04	7.071	0.708	0.087	0.009	320.3	0.2
C14	4.57E-03	4.57E-04	6.902	0.691	0.085	0.009	317.6	0.2
C15	4.13E-03	4.14E-04	6.245	0.625	0.077	0.008	316.3	0.2
C16	3.91E-03	3.91E-04	5.913	0.591	0.073	0.007	315.6	0.1
C17	4.11E-03	4.11E-04	6.212	0.622	0.077	0.008	316.4	0.1
C18	4.53E-03	4.54E-04	6.852	0.687	0.085	0.008	317.9	0.2
C19	5.06E-03	5.08E-04	7.650	0.768	0.095	0.009	321.1	0.2
D02	2.52E-03	2.53E-04	3.811	0.383	0.047	0.005	313.4	0.1
D03	2.36E-03	2.37E-04	3.566	0.359	0.044	0.004	312.1	0.1
D04	2.31E-03	2.32E-04	3.487	0.351	0.043	0.004	311.5	0.1
D13	4.48E-03	4.48E-04	6.775	0.678	0.084	0.008	318.5	0.2
D14	4.33E-03	4.33E-04	6.543	0.654	0.081	0.008	317.2	0.0
E03	2.43E-03	2.45E-04	3.675	0.370	0.045	0.005	312.6	0.0
F20	1.28E-04	1.52E-05	0.193	0.023	0.002	0.000	293.5	0.0
F21	1.55E-04	1.85E-05	0.234	0.028	0.003	0.000	292.0	0.1
F22	1.22E-04	1.47E-05	0.184	0.022	0.002	0.000	293.7	0.1
F23	1.24E-04	1.29E-05	0.187	0.019	0.002	0.000	293.5	0.0
F24	8.52E-05	8.59E-06	0.129	0.013	0.002	0.000	293.2	0.0
F25	5.89E-05	6.06E-06	0.089	0.009	0.001	0.000	293.2	0.0

Table C - 108. Run 3022 data, Mach 10 nozzle, $Re_\infty = 4.6\times10^6$/ft, α = 20°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.24E-03	2.25E-04	3.374	0.339	0.042	0.004	312.7	0.0
B02	2.22E-03	2.22E-04	3.341	0.335	0.041	0.004	312.9	0.1
B03	2.15E-03	2.16E-04	3.239	0.325	0.040	0.004	312.3	0.1
B04	2.11E-03	2.11E-04	3.180	0.319	0.039	0.004	311.7	0.0
B13	4.32E-03	4.32E-04	6.517	0.652	0.081	0.008	319.9	0.1
B14	4.24E-03	4.24E-04	6.390	0.639	0.079	0.008	318.6	0.1
C01	2.34E-03	2.35E-04	3.524	0.354	0.044	0.004	315.3	0.1
C02	2.18E-03	2.19E-04	3.286	0.330	0.041	0.004	312.9	0.1
C03	2.09E-03	2.10E-04	3.152	0.316	0.039	0.004	313.0	0.1
C04	2.04E-03	2.04E-04	3.074	0.308	0.038	0.004	311.7	0.1
C05	2.03E-03	2.04E-04	3.066	0.307	0.038	0.004	311.5	0.1
C06	2.16E-03	2.17E-04	3.260	0.327	0.040	0.004	312.4	0.1
C07	2.33E-03	2.33E-04	3.508	0.352	0.043	0.004	313.8	0.1
C08	2.68E-03	2.69E-04	4.040	0.406	0.050	0.005	317.0	0.1
C09	4.12E-03	4.13E-04	6.221	0.622	0.077	0.008	325.3	0.1
C10	5.15E-03	5.15E-04	7.766	0.777	0.096	0.010	329.9	0.2
C11	5.52E-03	5.52E-04	8.328	0.833	0.103	0.010	329.5	0.2
C12	4.88E-03	4.88E-04	7.365	0.736	0.091	0.009	324.3	0.2
C13	4.54E-03	4.54E-04	6.854	0.685	0.085	0.008	321.7	0.1
C14	4.32E-03	4.34E-04	6.513	0.655	0.081	0.008	319.1	0.1
C15	4.40E-03	4.40E-04	6.632	0.663	0.082	0.008	318.2	0.2
C16	4.19E-03	4.20E-04	6.314	0.634	0.078	0.008	317.3	0.2
C17	4.44E-03	4.45E-04	6.701	0.672	0.083	0.008	318.3	0.2
C18	4.91E-03	4.92E-04	7.412	0.742	0.092	0.009	320.1	0.3
C19	5.58E-03	5.59E-04	8.416	0.843	0.104	0.010	323.9	0.3
D02	2.34E-03	2.34E-04	3.525	0.353	0.044	0.004	313.4	0.2
D03	2.19E-03	2.19E-04	3.299	0.330	0.041	0.004	312.1	0.1
D04	2.12E-03	2.12E-04	3.200	0.320	0.040	0.004	311.6	0.1
D13	4.43E-03	4.43E-04	6.675	0.668	0.083	0.008	320.0	0.2
D14	4.15E-03	4.15E-04	6.260	0.626	0.078	0.008	318.6	0.1
E03	2.23E-03	2.23E-04	3.357	0.337	0.042	0.004	312.6	0.1
F20	2.03E-04	2.12E-05	0.306	0.032	0.004	0.000	293.6	0.1
F21	2.17E-04	2.24E-05	0.328	0.034	0.004	0.000	292.2	0.1
F22	2.16E-04	2.20E-05	0.326	0.033	0.004	0.000	293.8	0.0
F23	2.47E-04	3.09E-05	0.373	0.047	0.005	0.001	293.7	0.1
F24	6.19E-05	7.97E-06	0.093	0.012	0.001	0.000	293.2	0.0
F25	6.78E-05	1.14E-05	0.102	0.017	0.001	0.000	293.2	0.1

Table C - 109. Run 3022 data, Mach 10 nozzle, $Re_\infty = 4.6\times10^6$/ft, α = 24°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	1.98E-03	2.01E-04	2.968	0.302	0.037	0.004	312.6	0.2
B02	1.96E-03	2.00E-04	2.938	0.299	0.037	0.004	312.9	0.1
B03	1.95E-03	1.97E-04	2.918	0.296	0.036	0.004	312.3	0.1
B04	1.94E-03	1.96E-04	2.901	0.293	0.036	0.004	311.7	0.1
B13	4.23E-03	4.24E-04	6.345	0.636	0.079	0.008	321.7	0.1
B14	4.12E-03	4.13E-04	6.179	0.620	0.077	0.008	320.5	0.2
C01	2.10E-03	2.12E-04	3.145	0.318	0.039	0.004	315.3	0.1
C02	1.96E-03	1.97E-04	2.935	0.296	0.036	0.004	312.8	0.0
C03	1.91E-03	1.93E-04	2.867	0.289	0.036	0.004	313.0	0.0
C04	1.88E-03	1.89E-04	2.815	0.284	0.035	0.004	311.7	0.1
C05	1.87E-03	1.90E-04	2.810	0.285	0.035	0.004	311.5	0.0
C06	1.98E-03	2.00E-04	2.961	0.300	0.037	0.004	312.4	0.0
C07	2.08E-03	2.10E-04	3.117	0.316	0.039	0.004	313.8	0.1
C08	2.16E-03	2.32E-04	3.232	0.348	0.040	0.004	316.7	0.1
C09	3.91E-03	3.92E-04	5.863	0.588	0.073	0.007	326.3	0.1
C10	4.96E-03	4.97E-04	7.438	0.745	0.092	0.009	331.6	0.2
C11	5.46E-03	5.46E-04	8.181	0.819	0.102	0.010	331.9	0.3
C12	4.86E-03	4.87E-04	7.285	0.730	0.091	0.009	326.6	0.2
C13	4.48E-03	4.49E-04	6.718	0.674	0.084	0.008	323.6	0.2
C14	4.21E-03	4.23E-04	6.306	0.634	0.078	0.008	320.9	0.2
C15	4.14E-03	4.15E-04	6.211	0.623	0.077	0.008	320.2	0.1
C16	4.26E-03	4.26E-04	6.380	0.638	0.079	0.008	319.7	0.2
C17	4.52E-03	4.52E-04	6.774	0.678	0.084	0.008	320.8	0.3
C18	5.17E-03	5.17E-04	7.749	0.776	0.096	0.010	323.2	0.3
C19	5.95E-03	5.96E-04	8.926	0.894	0.111	0.011	327.8	0.5
D02	2.05E-03	2.08E-04	3.075	0.312	0.038	0.004	313.4	0.1
D03	1.94E-03	1.95E-04	2.903	0.292	0.036	0.004	312.1	0.2
D04	1.92E-03	1.93E-04	2.872	0.290	0.036	0.004	311.6	0.1
D13	4.30E-03	4.31E-04	6.440	0.647	0.080	0.008	321.9	0.2
D14	4.06E-03	4.07E-04	6.088	0.611	0.076	0.008	320.3	0.2
E03	1.98E-03	1.99E-04	2.967	0.299	0.037	0.004	312.6	0.0
F20	2.03E-04	2.05E-05	0.304	0.031	0.004	0.000	293.8	0.1
F21	2.73E-04	2.80E-05	0.409	0.042	0.005	0.001	292.5	0.1
F22	2.52E-04	2.63E-05	0.377	0.039	0.005	0.000	294.1	0.0
F23	4.58E-04	4.89E-05	0.687	0.073	0.009	0.001	294.3	0.0
F24	2.14E-04	2.27E-05	0.321	0.034	0.004	0.000	293.5	0.0
F25	1.82E-04	1.90E-05	0.273	0.028	0.003	0.000	293.5	0.1

Table C - 110. Run 3023 data, Mach 10 nozzle, $Re_\infty = 8.5\times10^6$/ft, $\alpha = 0°$.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.56E-03	2.57E-04	5.471	0.555	0.055	0.006	311.1	1.1
B02	2.62E-03	2.63E-04	5.605	0.566	0.056	0.006	311.5	1.1
B03	2.55E-03	2.56E-04	5.442	0.553	0.055	0.006	311.1	1.0
B04	2.44E-03	2.44E-04	5.213	0.524	0.052	0.005	310.4	1.0
B13	2.66E-03	2.67E-04	5.680	0.572	0.057	0.006	311.5	1.2
B14	2.56E-03	2.58E-04	5.468	0.550	0.055	0.006	310.9	1.1
C01	2.86E-03	2.88E-04	6.118	0.620	0.061	0.006	313.3	1.2
C02	2.62E-03	2.62E-04	5.595	0.562	0.056	0.006	311.5	1.1
C03	2.54E-03	2.54E-04	5.419	0.545	0.054	0.005	312.0	1.0
C04	2.45E-03	2.45E-04	5.232	0.524	0.053	0.005	310.6	1.1
C05	2.42E-03	2.45E-04	5.161	0.518	0.052	0.005	310.2	1.1
C06	2.48E-03	2.49E-04	5.307	0.531	0.053	0.005	310.6	1.1
C07	2.67E-03	2.67E-04	5.700	0.572	0.057	0.006	311.8	1.1
C08	3.03E-03	3.03E-04	6.470	0.648	0.065	0.007	313.8	1.3
C09	3.71E-03	3.71E-04	7.922	0.800	0.080	0.008	317.9	1.5
C10	3.99E-03	4.00E-04	8.532	0.859	0.086	0.009	319.5	1.7
C11	3.68E-03	3.70E-04	7.868	0.787	0.079	0.008	317.5	1.7
C12	2.98E-03	2.99E-04	6.366	0.639	0.064	0.006	313.8	1.3
C13	2.72E-03	2.73E-04	5.804	0.583	0.058	0.006	312.4	1.2
C14	2.49E-03	2.50E-04	5.315	0.536	0.053	0.005	310.6	1.1
C15	2.44E-03	2.46E-04	5.223	0.526	0.052	0.005	310.3	1.1
C16	2.41E-03	2.41E-04	5.141	0.517	0.052	0.005	310.1	1.1
C17	2.49E-03	2.50E-04	5.322	0.535	0.053	0.005	310.7	1.1
C18	2.62E-03	2.63E-04	5.603	0.562	0.056	0.006	311.4	1.1
C19	2.85E-03	2.86E-04	6.098	0.611	0.061	0.006	313.0	1.3
D02	2.67E-03	2.67E-04	5.700	0.576	0.057	0.006	311.8	1.1
D03	2.50E-03	2.50E-04	5.346	0.537	0.054	0.005	310.8	1.0
D04	2.39E-03	2.40E-04	5.112	0.515	0.051	0.005	310.3	1.0
D13	2.60E-03	2.61E-04	5.548	0.555	0.056	0.006	311.3	1.1
D14	2.50E-03	2.50E-04	5.331	0.534	0.054	0.005	310.7	1.1
E03	2.54E-03	2.54E-04	5.419	0.547	0.054	0.005	311.1	1.0
F20	3.94E-05	5.70E-06	0.084	0.012	0.001	0.000	296.9	0.1
F21	3.33E-05	3.98E-06	0.071	0.008	0.001	0.000	295.5	0.1
F22	7.43E-05	1.05E-05	0.159	0.022	0.002	0.000	297.1	0.0
F23	8.95E-05	1.61E-05	0.191	0.036	0.002	0.000	297.3	0.1
F24	4.10E-05	8.67E-06	0.088	0.019	0.001	0.000	297.0	0.0
F25	5.19E-05	1.09E-05	0.111	0.024	0.001	0.000	297.0	0.1

Table C - 111. Run 3023 data, Mach 10 nozzle, $Re_\infty = 8.5\times10^6$/ft, $\alpha = 4°$.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.38E-03	2.39E-04	4.979	0.498	0.051	0.005	314.6	0.1
B02	2.43E-03	2.43E-04	5.073	0.508	0.052	0.005	315.0	0.1
B03	2.36E-03	2.37E-04	4.937	0.494	0.050	0.005	314.5	0.1
B04	2.27E-03	2.27E-04	4.735	0.474	0.048	0.005	313.7	0.1
B13	2.86E-03	2.87E-04	5.981	0.599	0.061	0.006	316.1	0.2
B14	2.72E-03	2.73E-04	5.686	0.570	0.058	0.006	315.3	0.2
C01	2.64E-03	2.65E-04	5.522	0.553	0.056	0.006	317.3	0.1
C02	2.44E-03	2.45E-04	5.104	0.511	0.052	0.005	315.1	0.1
C03	2.40E-03	2.41E-04	5.020	0.503	0.051	0.005	315.5	0.2
C04	2.31E-03	2.32E-04	4.834	0.484	0.049	0.005	314.0	0.1
C05	2.27E-03	2.28E-04	4.746	0.475	0.048	0.005	313.7	0.1
C06	2.36E-03	2.37E-04	4.938	0.494	0.050	0.005	314.2	0.2
C07	2.53E-03	2.53E-04	5.274	0.528	0.054	0.005	315.5	0.0
C08	2.89E-03	2.89E-04	6.038	0.605	0.062	0.006	318.2	0.1
C09	3.64E-03	3.64E-04	7.607	0.761	0.078	0.008	323.6	0.3
C10	4.07E-03	4.07E-04	8.498	0.850	0.087	0.009	325.9	0.2
C11	3.91E-03	3.91E-04	8.158	0.816	0.083	0.008	323.9	0.3
C12	3.20E-03	3.20E-04	6.676	0.669	0.068	0.007	319.1	0.2
C13	2.93E-03	2.93E-04	6.112	0.612	0.062	0.006	317.1	0.2
C14	2.66E-03	2.66E-04	5.552	0.556	0.057	0.006	314.8	0.2
C15	2.60E-03	2.61E-04	5.431	0.544	0.055	0.006	314.5	0.2
C16	2.57E-03	2.57E-04	5.360	0.537	0.055	0.005	314.2	0.1
C17	2.69E-03	2.69E-04	5.608	0.562	0.057	0.006	314.9	0.2
C18	2.85E-03	2.86E-04	5.954	0.597	0.061	0.006	315.9	0.3
C19	3.10E-03	3.11E-04	6.480	0.650	0.066	0.007	318.2	0.3
D02	2.52E-03	2.52E-04	5.264	0.527	0.054	0.005	315.5	0.1
D03	2.36E-03	2.36E-04	4.920	0.492	0.050	0.005	314.3	0.1
D04	2.28E-03	2.28E-04	4.759	0.476	0.048	0.005	313.6	0.1
D13	2.81E-03	2.81E-04	5.861	0.587	0.060	0.006	315.9	0.2
D14	2.66E-03	2.66E-04	5.560	0.556	0.057	0.006	315.0	0.2
E03	2.47E-03	2.47E-04	5.166	0.517	0.053	0.005	314.8	0.2
F20	1.91E-04	2.10E-05	0.400	0.044	0.004	0.000	297.4	0.2
F21	1.33E-04	1.61E-05	0.277	0.033	0.003	0.000	295.8	0.2
F22	2.55E-04	2.61E-05	0.532	0.054	0.005	0.001	297.7	0.0
F23	5.71E-05	7.36E-06	0.119	0.015	0.001	0.000	297.3	0.0
F24	7.01E-05	7.85E-06	0.146	0.016	0.001	0.000	297.1	0.2
F25	5.34E-05	5.97E-06	0.111	0.012	0.001	0.000	297.1	0.0

Table C - 112. Run 3023 data, Mach 10 nozzle, $Re_\infty = 8.5\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.24E-03	2.25E-04	4.653	0.467	0.048	0.005	315.7	0.1
B02	2.27E-03	2.28E-04	4.714	0.473	0.048	0.005	316.1	0.2
B03	2.22E-03	2.22E-04	4.597	0.462	0.047	0.005	315.6	0.1
B04	2.11E-03	2.11E-04	4.371	0.439	0.045	0.004	314.7	0.0
B13	2.99E-03	2.99E-04	6.198	0.620	0.063	0.006	318.4	0.2
B14	2.87E-03	2.87E-04	5.958	0.596	0.061	0.006	317.6	0.2
C01	2.43E-03	2.44E-04	5.042	0.506	0.052	0.005	318.4	0.1
C02	2.26E-03	2.26E-04	4.680	0.469	0.048	0.005	316.1	0.1
C03	2.20E-03	2.21E-04	4.569	0.459	0.047	0.005	316.6	0.1
C04	2.12E-03	2.13E-04	4.408	0.443	0.045	0.005	315.0	0.1
C05	2.09E-03	2.09E-04	4.327	0.435	0.044	0.004	314.7	0.2
C06	2.17E-03	2.18E-04	4.499	0.452	0.046	0.005	315.3	0.1
C07	2.33E-03	2.34E-04	4.829	0.485	0.049	0.005	316.7	0.1
C08	2.68E-03	2.69E-04	5.568	0.558	0.057	0.006	319.5	0.1
C09	3.52E-03	3.52E-04	7.301	0.731	0.075	0.007	325.7	0.1
C10	4.03E-03	4.03E-04	8.359	0.836	0.085	0.009	328.6	0.2
C11	4.04E-03	4.04E-04	8.387	0.839	0.086	0.009	327.0	0.3
C12	3.48E-03	3.49E-04	7.216	0.723	0.074	0.007	322.0	0.3
C13	3.10E-03	3.11E-04	6.427	0.644	0.066	0.007	319.6	0.2
C14	2.86E-03	2.87E-04	5.926	0.594	0.061	0.006	317.1	0.3
C15	2.77E-03	2.78E-04	5.756	0.576	0.059	0.006	316.7	0.2
C16	2.76E-03	2.77E-04	5.728	0.574	0.059	0.006	316.5	0.1
C17	2.86E-03	2.86E-04	5.925	0.593	0.061	0.006	317.2	0.2
C18	3.05E-03	3.05E-04	6.322	0.633	0.065	0.006	318.4	0.2
C19	3.35E-03	3.36E-04	6.947	0.696	0.071	0.007	321.0	0.3
D02	2.30E-03	2.31E-04	4.772	0.479	0.049	0.005	316.5	0.0
D03	2.18E-03	2.19E-04	4.522	0.454	0.046	0.005	315.4	0.0
D04	2.07E-03	2.08E-04	4.296	0.432	0.044	0.004	314.6	0.1
D13	2.98E-03	2.99E-04	6.191	0.621	0.063	0.006	318.3	0.3
D14	2.79E-03	2.80E-04	5.794	0.581	0.059	0.006	317.1	0.2
E03	2.33E-03	2.34E-04	4.842	0.485	0.050	0.005	316.1	0.1
F20	1.77E-04	1.97E-05	0.368	0.041	0.004	0.000	297.6	0.2
F21	1.60E-04	1.68E-05	0.333	0.035	0.003	0.000	296.1	0.0
F22	2.25E-04	2.29E-05	0.466	0.048	0.005	0.000	298.0	0.1
F23	8.16E-05	8.59E-06	0.169	0.018	0.002	0.000	297.4	0.2
F24	8.14E-05	8.30E-06	0.169	0.017	0.002	0.000	297.2	0.1
F25	6.33E-05	6.42E-06	0.131	0.013	0.001	0.000	297.2	0.1

Table C - 113. Run 3023 data, Mach 10 nozzle, $Re_\infty = 8.5\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.11E-03	2.11E-04	4.350	0.435	0.045	0.004	316.6	0.1
B02	2.15E-03	2.15E-04	4.434	0.444	0.046	0.005	317.0	0.2
B03	2.08E-03	2.08E-04	4.291	0.429	0.044	0.004	316.4	0.1
B04	2.00E-03	2.00E-04	4.126	0.413	0.042	0.004	315.6	0.1
B13	3.28E-03	3.29E-04	6.763	0.678	0.069	0.007	321.1	0.2
B14	3.10E-03	3.10E-04	6.376	0.639	0.066	0.007	320.0	0.3
C01	2.31E-03	2.32E-04	4.768	0.477	0.049	0.005	319.4	0.1
C02	2.16E-03	2.16E-04	4.444	0.445	0.046	0.005	317.0	0.1
C03	2.09E-03	2.09E-04	4.304	0.431	0.044	0.004	317.4	0.1
C04	2.00E-03	2.00E-04	4.119	0.413	0.042	0.004	315.8	0.1
C05	1.96E-03	1.97E-04	4.044	0.405	0.042	0.004	315.5	0.1
C06	2.04E-03	2.04E-04	4.204	0.421	0.043	0.004	316.1	0.1
C07	2.18E-03	2.19E-04	4.495	0.450	0.046	0.005	317.5	0.1
C08	2.51E-03	2.52E-04	5.179	0.519	0.053	0.005	320.5	0.1
C09	3.43E-03	3.43E-04	7.068	0.707	0.073	0.007	327.6	0.2
C10	4.05E-03	4.06E-04	8.351	0.835	0.086	0.009	331.1	0.2
C11	4.15E-03	4.15E-04	8.538	0.854	0.088	0.009	330.0	0.3
C12	3.69E-03	3.69E-04	7.599	0.760	0.078	0.008	325.1	0.2
C13	3.55E-03	3.57E-04	7.303	0.734	0.075	0.008	322.7	0.3
C14	3.17E-03	3.18E-04	6.536	0.656	0.067	0.007	319.8	0.3
C15	3.02E-03	3.02E-04	6.215	0.623	0.064	0.006	319.2	0.3
C16	2.93E-03	2.93E-04	6.027	0.603	0.062	0.006	318.8	0.2
C17	3.03E-03	3.03E-04	6.231	0.624	0.064	0.006	319.6	0.1
C18	3.28E-03	3.28E-04	6.747	0.676	0.069	0.007	321.0	0.2
C19	3.64E-03	3.65E-04	7.497	0.752	0.077	0.008	324.1	0.3
D02	2.25E-03	2.25E-04	4.640	0.464	0.048	0.005	317.5	0.1
D03	2.10E-03	2.10E-04	4.330	0.433	0.044	0.004	316.3	0.0
D04	2.04E-03	2.04E-04	4.193	0.419	0.043	0.004	315.5	0.2
D13	3.29E-03	3.29E-04	6.773	0.678	0.070	0.007	321.0	0.2
D14	3.02E-03	3.03E-04	6.225	0.623	0.064	0.006	319.6	0.2
E03	2.18E-03	2.19E-04	4.498	0.451	0.046	0.005	317.0	0.1
F20	8.26E-05	8.73E-06	0.170	0.018	0.002	0.000	297.6	0.0
F21	8.55E-05	8.67E-06	0.176	0.018	0.002	0.000	296.0	0.0
F22	1.60E-04	1.86E-05	0.329	0.038	0.003	0.000	298.1	0.0
F23	6.27E-05	6.86E-06	0.129	0.014	0.001	0.000	297.4	0.1
F24	5.34E-05	5.55E-06	0.110	0.011	0.001	0.000	297.2	0.0
F25	4.60E-05	4.63E-06	0.095	0.010	0.001	0.000	297.2	0.1

Table C - 114. Run 3023 data, Mach 10 nozzle, $Re_\infty = 8.5\times10^6$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	1.99E-03	1.99E-04	4.085	0.410	0.042	0.004	317.3	0.1
B02	1.99E-03	2.00E-04	4.089	0.411	0.042	0.004	317.7	0.1
B03	1.91E-03	1.92E-04	3.916	0.394	0.040	0.004	317.1	0.1
B04	1.81E-03	1.82E-04	3.720	0.374	0.038	0.004	316.1	0.1
B13	3.35E-03	3.35E-04	6.885	0.689	0.071	0.007	323.7	0.2
B14	3.27E-03	3.27E-04	6.720	0.672	0.069	0.007	322.6	0.2
C01	2.11E-03	2.11E-04	4.335	0.434	0.045	0.004	320.1	0.0
C02	1.93E-03	1.93E-04	3.973	0.397	0.041	0.004	317.5	0.2
C03	1.85E-03	1.85E-04	3.797	0.380	0.039	0.004	317.8	0.1
C04	1.76E-03	1.77E-04	3.625	0.363	0.037	0.004	316.2	0.1
C05	1.70E-03	1.71E-04	3.503	0.351	0.036	0.004	315.8	0.1
C06	1.78E-03	1.79E-04	3.660	0.368	0.038	0.004	316.5	0.1
C07	1.92E-03	1.93E-04	3.935	0.396	0.040	0.004	318.0	0.1
C08	2.26E-03	2.27E-04	4.634	0.466	0.048	0.005	321.1	0.0
C09	3.26E-03	3.27E-04	6.706	0.671	0.069	0.007	329.1	0.1
C10	3.97E-03	3.97E-04	8.164	0.817	0.084	0.008	333.4	0.2
C11	4.13E-03	4.13E-04	8.495	0.849	0.087	0.009	332.7	0.3
C12	3.68E-03	3.68E-04	7.570	0.757	0.078	0.008	327.8	0.2
C13	3.57E-03	3.58E-04	7.338	0.736	0.075	0.008	325.6	0.2
C14	3.40E-03	3.40E-04	6.978	0.698	0.072	0.007	322.7	0.3
C15	3.17E-03	3.18E-04	6.518	0.653	0.067	0.007	321.7	0.3
C16	3.09E-03	3.10E-04	6.352	0.637	0.065	0.007	321.2	0.2
C17	3.19E-03	3.19E-04	6.553	0.656	0.067	0.007	322.1	0.2
C18	3.48E-03	3.48E-04	7.142	0.715	0.073	0.007	323.8	0.2
C19	3.91E-03	3.92E-04	8.041	0.805	0.083	0.008	327.4	0.3
D02	2.02E-03	2.03E-04	4.141	0.418	0.043	0.004	318.2	0.1
D03	1.88E-03	1.90E-04	3.856	0.390	0.040	0.004	316.9	0.1
D04	1.79E-03	1.82E-04	3.678	0.373	0.038	0.004	316.1	0.1
D13	3.32E-03	3.32E-04	6.819	0.682	0.070	0.007	323.5	0.2
D14	3.14E-03	3.14E-04	6.446	0.645	0.066	0.007	321.9	0.2
E03	1.94E-03	1.95E-04	3.981	0.400	0.041	0.004	317.5	0.0
F20	1.40E-04	1.54E-05	0.287	0.032	0.003	0.000	297.7	0.1
F21	1.59E-04	1.73E-05	0.328	0.036	0.003	0.000	296.2	0.2
F22	1.05E-04	1.16E-05	0.216	0.024	0.002	0.000	298.0	0.1
F23	1.14E-04	1.22E-05	0.235	0.025	0.002	0.000	297.5	0.2
F24	6.49E-05	6.62E-06	0.133	0.014	0.001	0.000	297.2	0.1
F25	4.80E-05	4.93E-06	0.099	0.010	0.001	0.000	297.2	0.1

Table C - 115. Run 3023 data, Mach 10 nozzle, $Re_\infty = 8.5 \times 10^6$/ft, α = 20°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	1.82E-03	1.83E-04	3.720	0.374	0.038	0.004	317.8	0.1
B02	1.79E-03	1.80E-04	3.663	0.368	0.038	0.004	318.0	0.0
B03	1.75E-03	1.75E-04	3.574	0.359	0.037	0.004	317.4	0.0
B04	1.69E-03	1.70E-04	3.454	0.347	0.036	0.004	316.5	0.0
B13	3.35E-03	3.35E-04	6.850	0.685	0.071	0.007	325.9	0.2
B14	3.36E-03	3.37E-04	6.880	0.688	0.071	0.007	325.1	0.2
C01	2.03E-03	2.09E-04	4.147	0.427	0.043	0.004	320.9	0.1
C02	1.86E-03	1.93E-04	3.800	0.395	0.039	0.004	318.2	0.1
C03	1.78E-03	1.84E-04	3.631	0.377	0.037	0.004	318.4	0.1
C04	1.68E-03	1.74E-04	3.434	0.357	0.035	0.004	316.7	0.1
C05	1.63E-03	1.68E-04	3.343	0.345	0.034	0.004	316.2	0.2
C06	1.69E-03	1.72E-04	3.454	0.351	0.036	0.004	316.9	0.1
C07	1.81E-03	1.83E-04	3.706	0.374	0.038	0.004	318.4	0.0
C08	2.05E-03	2.06E-04	4.197	0.421	0.043	0.004	321.5	0.0
C09	3.14E-03	3.14E-04	6.424	0.643	0.066	0.007	330.5	0.1
C10	3.90E-03	3.90E-04	7.966	0.797	0.082	0.008	335.5	0.0
C11	4.15E-03	4.15E-04	8.478	0.848	0.087	0.009	335.3	0.2
C12	3.72E-03	3.72E-04	7.599	0.760	0.078	0.008	330.4	0.2
C13	3.51E-03	3.51E-04	7.183	0.718	0.074	0.007	327.7	0.1
C14	3.41E-03	3.41E-04	6.966	0.697	0.072	0.007	325.2	0.2
C15	3.50E-03	3.50E-04	7.156	0.716	0.074	0.007	324.6	0.3
C16	3.32E-03	3.32E-04	6.780	0.678	0.070	0.007	323.9	0.2
C17	3.38E-03	3.38E-04	6.903	0.690	0.071	0.007	324.7	0.2
C18	3.71E-03	3.71E-04	7.576	0.758	0.078	0.008	326.7	0.3
C19	4.23E-03	4.24E-04	8.653	0.867	0.089	0.009	331.1	0.3
D02	1.88E-03	1.89E-04	3.845	0.386	0.040	0.004	318.6	0.2
D03	1.72E-03	1.73E-04	3.523	0.353	0.036	0.004	317.2	0.2
D04	1.65E-03	1.66E-04	3.377	0.339	0.035	0.003	316.3	0.2
D13	3.33E-03	3.33E-04	6.817	0.682	0.070	0.007	325.7	0.1
D14	3.21E-03	3.21E-04	6.560	0.656	0.068	0.007	324.3	0.1
E03	2.04E-03	2.05E-04	4.174	0.419	0.043	0.004	318.3	0.0
F20	1.74E-04	1.77E-05	0.355	0.036	0.004	0.000	297.9	0.0
F21	1.98E-04	2.05E-05	0.405	0.042	0.004	0.000	296.5	0.0
F22	1.73E-04	1.75E-05	0.354	0.036	0.004	0.000	298.1	0.1
F23	2.27E-04	2.76E-05	0.463	0.056	0.005	0.001	297.9	0.1
F24	4.92E-05	4.95E-06	0.101	0.010	0.001	0.000	297.3	0.0
F25	3.71E-05	4.74E-06	0.076	0.010	0.001	0.000	297.2	0.1

Table C - 116. Run 3023 data, Mach 10 nozzle, $Re_\infty = 8.5 \times 10^6$/ft, α = 24°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	1.57E-03	1.58E-04	3.196	0.321	0.033	0.003	317.8	0.1
B02	1.48E-03	1.50E-04	3.025	0.305	0.031	0.003	317.9	0.0
B03	1.48E-03	1.49E-04	3.012	0.303	0.031	0.003	317.4	0.2
B04	1.44E-03	1.45E-04	2.939	0.295	0.030	0.003	316.5	0.1
B13	3.31E-03	3.31E-04	6.749	0.675	0.070	0.007	328.2	0.1
B14	3.23E-03	3.23E-04	6.574	0.657	0.068	0.007	327.2	0.2
C01	2.35E-03	3.76E-04	4.778	0.767	0.049	0.008	321.8	0.5
C02	2.23E-03	3.90E-04	4.536	0.795	0.047	0.008	318.9	0.6
C03	2.15E-03	3.93E-04	4.389	0.800	0.045	0.008	319.1	0.6
C04	2.03E-03	3.74E-04	4.139	0.761	0.043	0.008	317.3	0.6
C05	1.96E-03	3.61E-04	3.997	0.735	0.041	0.008	316.9	0.6
C06	1.86E-03	3.04E-04	3.799	0.619	0.039	0.006	317.4	0.4
C07	1.80E-03	2.53E-04	3.670	0.516	0.038	0.005	318.6	0.3
C08	1.50E-03	1.76E-04	3.046	0.359	0.032	0.004	321.0	0.2
C09	2.94E-03	2.94E-04	5.988	0.600	0.062	0.006	331.7	0.1
C10	3.70E-03	3.71E-04	7.548	0.756	0.078	0.008	337.4	0.2
C11	4.07E-03	4.07E-04	8.285	0.829	0.086	0.009	337.9	0.2
C12	3.71E-03	3.71E-04	7.549	0.755	0.078	0.008	333.0	0.2
C13	3.49E-03	3.49E-04	7.106	0.711	0.073	0.007	330.1	0.2
C14	3.32E-03	3.32E-04	6.755	0.676	0.070	0.007	327.5	0.2
C15	3.32E-03	3.34E-04	6.766	0.680	0.070	0.007	327.2	0.2
C16	3.36E-03	3.37E-04	6.851	0.686	0.071	0.007	326.5	0.2
C17	3.46E-03	3.47E-04	7.057	0.707	0.073	0.007	327.4	0.3
C18	3.90E-03	3.91E-04	7.953	0.797	0.082	0.008	330.0	0.3
C19	4.58E-03	4.59E-04	9.322	0.934	0.096	0.010	335.4	0.4
D02	1.70E-03	1.70E-04	3.462	0.347	0.036	0.004	318.8	0.1
D03	1.53E-03	1.53E-04	3.109	0.311	0.032	0.003	317.3	0.0
D04	1.44E-03	1.44E-04	2.927	0.293	0.030	0.003	316.4	0.0
D13	3.27E-03	3.28E-04	6.672	0.667	0.069	0.007	327.9	0.2
D14	3.18E-03	3.18E-04	6.480	0.648	0.067	0.007	326.5	0.3
E03	2.10E-03	2.10E-04	4.269	0.427	0.044	0.004	319.7	0.0
F20	1.94E-04	1.97E-05	0.396	0.040	0.004	0.000	298.2	0.0
F21	2.44E-04	2.44E-05	0.496	0.050	0.005	0.001	296.9	0.1
F22	1.91E-04	1.94E-05	0.390	0.039	0.004	0.000	298.3	0.1
F23	4.08E-04	4.16E-05	0.830	0.085	0.009	0.001	298.7	0.2
F24	1.54E-04	1.97E-05	0.314	0.040	0.003	0.000	297.5	0.1
F25	1.41E-04	1.68E-05	0.287	0.034	0.003	0.000	297.4	0.0

Table C - 117. Run 3024 data, Mach 10 nozzle, $Re_{\infty} = 14.4 \times 10^6$/ft, $\alpha = 0°$.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.20E-03	2.22E-04	6.022	0.614	0.052	0.005	313.2	1.6
B02	2.36E-03	2.41E-04	6.465	0.669	0.056	0.006	314.2	1.7
B03	2.19E-03	2.21E-04	6.003	0.610	0.052	0.005	312.9	1.6
B04	2.03E-03	2.06E-04	5.562	0.569	0.048	0.005	311.4	1.5
B13	2.13E-03	2.13E-04	5.822	0.582	0.050	0.005	312.4	1.6
B14	2.08E-03	2.23E-04	5.695	0.598	0.049	0.005	311.5	1.8
C01	3.44E-03	3.51E-04	9.422	0.975	0.082	0.008	324.4	2.4
C02	2.77E-03	2.81E-04	7.576	0.780	0.066	0.007	317.9	2.0
C03	2.22E-03	2.26E-04	6.080	0.625	0.053	0.005	314.0	1.6
C04	2.09E-03	2.13E-04	5.715	0.589	0.050	0.005	311.8	1.6
C05	2.03E-03	2.09E-04	5.566	0.578	0.048	0.005	311.4	1.5
C06	2.06E-03	2.27E-04	5.630	0.626	0.049	0.005	312.9	1.2
C07	2.21E-03	2.27E-04	6.045	0.628	0.052	0.005	313.0	1.7
C08	2.50E-03	2.53E-04	6.831	0.701	0.059	0.006	315.6	1.9
C09	3.05E-03	3.08E-04	8.344	0.850	0.072	0.007	320.8	2.3
C10	3.30E-03	3.30E-04	9.031	0.906	0.078	0.008	322.9	2.5
C11	2.98E-03	2.99E-04	8.147	0.817	0.071	0.007	319.9	2.4
C12	2.39E-03	2.41E-04	6.547	0.657	0.057	0.006	315.1	1.9
C13	2.20E-03	2.21E-04	6.033	0.604	0.052	0.005	313.6	1.7
C14	2.01E-03	2.01E-04	5.508	0.551	0.048	0.005	311.4	1.5
C15	2.00E-03	2.01E-04	5.474	0.548	0.047	0.005	311.3	1.5
C16	2.01E-03	2.02E-04	5.505	0.551	0.048	0.005	311.3	1.5
C17	2.14E-03	2.15E-04	5.860	0.591	0.051	0.005	312.6	1.5
C18	2.32E-03	2.33E-04	6.346	0.645	0.055	0.006	314.2	1.6
C19	2.52E-03	2.55E-04	6.895	0.706	0.060	0.006	316.6	1.8
D02	2.37E-03	2.41E-04	6.496	0.668	0.056	0.006	314.4	1.7
D03	2.19E-03	2.21E-04	5.988	0.612	0.052	0.005	312.7	1.6
D04	2.07E-03	2.09E-04	5.658	0.578	0.049	0.005	311.6	1.6
D13	2.15E-03	2.15E-04	5.871	0.589	0.051	0.005	312.6	1.7
D14	2.09E-03	2.10E-04	5.710	0.583	0.049	0.005	312.2	1.5
E03	2.28E-03	2.41E-04	6.253	0.674	0.054	0.006	313.6	1.6
F20	4.16E-05	7.49E-06	0.114	0.020	0.001	0.000	293.7	0.1
F21	3.85E-05	5.57E-06	0.105	0.015	0.001	0.000	292.3	0.1
F22	7.62E-05	1.19E-05	0.209	0.031	0.002	0.000	294.0	0.2
F23	9.85E-05	1.45E-05	0.270	0.041	0.002	0.000	294.3	0.2
F24	5.05E-05	8.73E-06	0.138	0.025	0.001	0.000	293.8	0.1
F25	5.73E-05	1.07E-05	0.157	0.030	0.001	0.000	293.9	0.2

Table C - 118. Run 3024 data, Mach 10 nozzle, $Re_\infty = 14.4 \times 10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.25E-03	2.25E-04	5.993	0.599	0.053	0.005	318.9	0.3
B02	2.36E-03	2.36E-04	6.273	0.628	0.055	0.006	320.1	0.3
B03	2.21E-03	2.21E-04	5.870	0.588	0.052	0.005	318.5	0.3
B04	2.08E-03	2.08E-04	5.529	0.553	0.049	0.005	316.8	0.3
B13	2.40E-03	2.41E-04	6.389	0.641	0.056	0.006	319.1	0.4
B14	2.32E-03	2.33E-04	6.178	0.618	0.054	0.005	318.4	0.3
C01	3.58E-03	3.58E-04	9.517	0.952	0.084	0.008	333.7	0.4
C02	3.22E-03	3.22E-04	8.556	0.856	0.075	0.008	326.6	0.5
C03	2.62E-03	2.62E-04	6.971	0.697	0.061	0.006	321.3	0.4
C04	2.36E-03	2.36E-04	6.275	0.628	0.055	0.006	318.3	0.4
C05	2.25E-03	2.25E-04	5.990	0.599	0.053	0.005	317.5	0.3
C06	2.11E-03	2.12E-04	5.620	0.563	0.050	0.005	318.1	0.3
C07	2.16E-03	2.16E-04	5.755	0.576	0.051	0.005	318.4	0.2
C08	2.44E-03	2.44E-04	6.493	0.649	0.057	0.006	321.8	0.3
C09	3.05E-03	3.05E-04	8.105	0.811	0.071	0.007	328.7	0.3
C10	3.42E-03	3.42E-04	9.089	0.909	0.080	0.008	332.1	0.5
C11	3.41E-03	3.43E-04	9.061	0.910	0.080	0.008	329.5	0.5
C12	2.78E-03	2.84E-04	7.397	0.753	0.065	0.007	323.0	0.5
C13	2.55E-03	2.57E-04	6.774	0.682	0.060	0.006	320.7	0.4
C14	2.36E-03	2.37E-04	6.278	0.630	0.055	0.006	318.1	0.4
C15	2.28E-03	2.29E-04	6.068	0.608	0.053	0.005	317.7	0.4
C16	2.27E-03	2.27E-04	6.023	0.604	0.053	0.005	317.6	0.3
C17	2.35E-03	2.36E-04	6.256	0.626	0.055	0.006	319.0	0.3
C18	2.47E-03	2.48E-04	6.576	0.659	0.058	0.006	320.7	0.3
C19	2.67E-03	2.68E-04	7.099	0.711	0.063	0.006	323.7	0.4
D02	2.41E-03	2.42E-04	6.419	0.642	0.057	0.006	320.6	0.3
D03	2.21E-03	2.21E-04	5.872	0.587	0.052	0.005	318.4	0.3
D04	2.08E-03	2.08E-04	5.541	0.554	0.049	0.005	317.0	0.3
D13	2.45E-03	2.47E-04	6.513	0.655	0.057	0.006	319.4	0.4
D14	2.30E-03	2.32E-04	6.118	0.615	0.054	0.005	318.3	0.4
E03	2.30E-03	2.30E-04	6.116	0.612	0.054	0.005	319.3	0.3
F20	2.02E-04	2.09E-05	0.538	0.055	0.005	0.000	294.5	0.1
F21	1.57E-04	1.73E-05	0.417	0.046	0.004	0.000	293.0	0.1
F22	2.69E-04	2.70E-05	0.717	0.072	0.006	0.001	295.1	0.0
F23	7.08E-05	8.36E-06	0.188	0.022	0.002	0.000	294.3	0.1
F24	8.73E-05	1.09E-05	0.232	0.029	0.002	0.000	294.1	0.2
F25	7.38E-05	9.26E-06	0.196	0.025	0.002	0.000	294.1	0.1

Table C - 119. Run 3024 data, Mach 10 nozzle, $Re_\infty = 14.4\times10^6$/ft, $\alpha = 8°$.

Gauge	St	ΔSt	$St\times(ReD)^{(1/2)}$	$\Delta St\times(ReD)^{(1/2)}$	$St\times(ReD)^{(1/5)}$	$\Delta St\times(ReD)^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.31E-03	2.33E-04	6.131	0.617	0.054	0.005	321.6	0.3
B02	2.40E-03	2.41E-04	6.370	0.638	0.056	0.006	322.9	0.2
B03	2.19E-03	2.19E-04	5.811	0.581	0.051	0.005	321.0	0.2
B04	1.97E-03	1.97E-04	5.215	0.522	0.046	0.005	318.8	0.1
B13	2.52E-03	2.52E-04	6.670	0.667	0.059	0.006	322.5	0.3
B14	2.45E-03	2.45E-04	6.492	0.650	0.057	0.006	321.6	0.3
C01	3.40E-03	3.40E-04	9.015	0.902	0.080	0.008	337.2	0.2
C02	2.72E-03	2.73E-04	7.220	0.724	0.064	0.006	329.0	0.1
C03	2.22E-03	2.23E-04	5.893	0.591	0.052	0.005	323.3	0.1
C04	2.00E-03	2.01E-04	5.296	0.533	0.047	0.005	320.1	0.1
C05	1.83E-03	1.85E-04	4.849	0.491	0.043	0.004	318.9	0.1
C06	1.71E-03	1.72E-04	4.522	0.457	0.040	0.004	319.0	0.1
C07	1.94E-03	1.96E-04	5.138	0.519	0.045	0.005	320.1	0.1
C08	2.22E-03	2.23E-04	5.880	0.592	0.052	0.005	323.8	0.1
C09	2.85E-03	2.85E-04	7.548	0.757	0.067	0.007	331.5	0.1
C10	3.25E-03	3.25E-04	8.609	0.862	0.076	0.008	335.5	0.2
C11	3.37E-03	3.37E-04	8.924	0.894	0.079	0.008	333.9	0.3
C12	3.15E-03	3.15E-04	8.345	0.835	0.074	0.007	328.2	0.4
C13	2.70E-03	2.70E-04	7.147	0.716	0.063	0.006	324.5	0.3
C14	2.41E-03	2.41E-04	6.395	0.640	0.056	0.006	321.3	0.3
C15	2.34E-03	2.34E-04	6.210	0.621	0.055	0.005	320.8	0.2
C16	2.33E-03	2.33E-04	6.183	0.618	0.055	0.005	320.7	0.3
C17	2.43E-03	2.44E-04	6.453	0.646	0.057	0.006	322.1	0.2
C18	2.56E-03	2.57E-04	6.800	0.680	0.060	0.006	323.9	0.2
C19	2.79E-03	2.79E-04	7.386	0.739	0.065	0.007	327.3	0.3
D02	2.36E-03	2.36E-04	6.264	0.626	0.055	0.006	323.1	0.2
D03	2.11E-03	2.11E-04	5.594	0.560	0.049	0.005	320.6	0.1
D04	1.94E-03	1.94E-04	5.144	0.515	0.045	0.005	318.9	0.1
D13	2.57E-03	2.57E-04	6.808	0.681	0.060	0.006	323.0	0.3
D14	2.41E-03	2.41E-04	6.385	0.639	0.056	0.006	321.6	0.2
E03	2.29E-03	2.29E-04	6.081	0.608	0.054	0.005	321.9	0.2
F20	1.88E-04	1.93E-05	0.498	0.051	0.004	0.000	295.0	0.0
F21	1.93E-04	1.93E-05	0.511	0.051	0.005	0.000	293.5	0.1
F22	1.97E-04	1.99E-05	0.522	0.053	0.005	0.000	295.4	0.1
F23	8.65E-05	8.72E-06	0.229	0.023	0.002	0.000	294.5	0.1
F24	1.11E-04	1.15E-05	0.294	0.030	0.003	0.000	294.4	0.0
F25	8.57E-05	9.07E-06	0.227	0.024	0.002	0.000	294.3	0.1

Table C - 120. Run 3024 data, Mach 10 nozzle, $Re_\infty = 14.4\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.65E-03	2.65E-04	6.967	0.698	0.062	0.006	325.0	0.3
B02	2.72E-03	2.74E-04	7.155	0.720	0.063	0.006	326.2	0.3
B03	2.40E-03	2.41E-04	6.308	0.634	0.056	0.006	323.6	0.3
B04	2.11E-03	2.13E-04	5.560	0.558	0.049	0.005	320.9	0.3
B13	2.71E-03	2.72E-04	7.136	0.715	0.063	0.006	325.7	0.3
B14	2.60E-03	2.61E-04	6.844	0.686	0.061	0.006	324.6	0.3
C01	3.43E-03	3.43E-04	9.019	0.902	0.080	0.008	340.2	0.3
C02	3.03E-03	3.06E-04	7.965	0.803	0.071	0.007	331.8	0.3
C03	2.44E-03	2.46E-04	6.421	0.646	0.057	0.006	325.6	0.3
C04	2.10E-03	2.11E-04	5.515	0.554	0.049	0.005	321.7	0.2
C05	1.85E-03	1.85E-04	4.867	0.487	0.043	0.004	320.0	0.1
C06	1.72E-03	1.72E-04	4.526	0.453	0.040	0.004	319.9	0.1
C07	1.79E-03	1.79E-04	4.714	0.472	0.042	0.004	321.0	0.1
C08	2.04E-03	2.04E-04	5.372	0.538	0.048	0.005	324.8	0.0
C09	2.78E-03	2.79E-04	7.326	0.733	0.065	0.006	333.6	0.3
C10	3.26E-03	3.26E-04	8.575	0.858	0.076	0.008	338.2	0.3
C11	3.37E-03	3.37E-04	8.859	0.887	0.079	0.008	337.1	0.3
C12	3.16E-03	3.16E-04	8.313	0.832	0.074	0.007	331.9	0.3
C13	3.02E-03	3.04E-04	7.950	0.799	0.071	0.007	328.4	0.4
C14	2.70E-03	2.74E-04	7.111	0.719	0.063	0.006	324.7	0.4
C15	2.50E-03	2.51E-04	6.569	0.659	0.058	0.006	323.6	0.3
C16	2.45E-03	2.45E-04	6.434	0.644	0.057	0.006	323.4	0.3
C17	2.55E-03	2.55E-04	6.700	0.670	0.059	0.006	324.9	0.3
C18	2.70E-03	2.71E-04	7.112	0.712	0.063	0.006	326.8	0.3
C19	2.98E-03	2.99E-04	7.832	0.785	0.069	0.007	330.8	0.4
D02	2.63E-03	2.65E-04	6.916	0.697	0.061	0.006	326.0	0.3
D03	2.30E-03	2.32E-04	6.047	0.609	0.054	0.005	322.9	0.3
D04	2.08E-03	2.10E-04	5.468	0.551	0.049	0.005	320.9	0.3
D13	2.80E-03	2.81E-04	7.359	0.739	0.065	0.007	326.4	0.3
D14	2.55E-03	2.56E-04	6.710	0.672	0.060	0.006	324.5	0.3
E03	2.54E-03	2.56E-04	6.683	0.673	0.059	0.006	324.8	0.3
F20	1.21E-04	1.31E-05	0.319	0.035	0.003	0.000	295.0	0.1
F21	1.53E-04	1.61E-05	0.403	0.042	0.004	0.000	293.6	0.1
F22	2.28E-04	2.28E-05	0.599	0.060	0.005	0.001	295.7	0.0
F23	8.05E-05	8.11E-06	0.212	0.021	0.002	0.000	294.5	0.0
F24	6.26E-05	6.87E-06	0.165	0.018	0.001	0.000	294.3	0.0
F25	5.26E-05	5.41E-06	0.138	0.014	0.001	0.000	294.2	0.0

Table C - 121. Run 3024 data, Mach 10 nozzle, $Re_{\infty} = 14.4 \times 10^6$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.77E-03	2.79E-04	7.356	0.742	0.065	0.007	327.9	0.2
B02	2.93E-03	2.94E-04	7.780	0.781	0.069	0.007	329.4	0.2
B03	2.55E-03	2.56E-04	6.767	0.679	0.060	0.006	326.2	0.2
B04	2.22E-03	2.22E-04	5.892	0.590	0.052	0.005	323.1	0.1
B13	2.85E-03	2.85E-04	7.552	0.756	0.067	0.007	328.7	0.2
B14	2.78E-03	2.79E-04	7.381	0.740	0.065	0.007	327.6	0.3
C01	3.42E-03	3.42E-04	9.074	0.907	0.080	0.008	342.8	0.1
C02	3.26E-03	3.26E-04	8.646	0.867	0.076	0.008	335.1	0.3
C03	2.64E-03	2.65E-04	6.998	0.705	0.062	0.006	328.3	0.2
C04	2.23E-03	2.24E-04	5.913	0.595	0.052	0.005	323.8	0.2
C05	1.87E-03	1.87E-04	4.960	0.498	0.044	0.004	321.4	0.1
C06	1.67E-03	1.67E-04	4.421	0.442	0.039	0.004	320.8	0.1
C07	1.69E-03	1.70E-04	4.492	0.450	0.040	0.004	321.6	0.0
C08	1.91E-03	1.93E-04	5.075	0.511	0.045	0.005	325.5	0.1
C09	2.80E-03	2.80E-04	7.420	0.742	0.066	0.007	335.6	0.1
C10	3.20E-03	3.21E-04	8.493	0.850	0.075	0.008	340.5	0.0
C11	3.38E-03	3.39E-04	8.974	0.897	0.079	0.008	339.9	0.2
C12	3.07E-03	3.07E-04	8.128	0.813	0.072	0.007	334.5	0.1
C13	3.07E-03	3.08E-04	8.142	0.815	0.072	0.007	331.6	0.2
C14	3.03E-03	3.03E-04	8.029	0.804	0.071	0.007	328.5	0.3
C15	2.71E-03	2.72E-04	7.182	0.722	0.063	0.006	326.6	0.3
C16	2.58E-03	2.58E-04	6.840	0.685	0.060	0.006	326.0	0.2
C17	2.64E-03	2.64E-04	7.004	0.701	0.062	0.006	327.4	0.3
C18	2.90E-03	2.90E-04	7.681	0.771	0.068	0.007	329.8	0.2
C19	3.23E-03	3.24E-04	8.562	0.860	0.076	0.008	334.3	0.3
D02	2.86E-03	2.86E-04	7.585	0.759	0.067	0.007	329.2	0.3
D03	2.48E-03	2.48E-04	6.570	0.657	0.058	0.006	325.5	0.2
D04	2.20E-03	2.21E-04	5.845	0.584	0.052	0.005	323.1	0.2
D13	2.91E-03	2.91E-04	7.714	0.771	0.068	0.007	329.5	0.2
D14	2.69E-03	2.69E-04	7.131	0.714	0.063	0.006	327.3	0.2
E03	2.90E-03	2.93E-04	7.701	0.782	0.068	0.007	328.2	0.4
F20	1.37E-04	1.54E-05	0.363	0.041	0.003	0.000	295.0	0.1
F21	1.52E-04	1.62E-05	0.404	0.043	0.004	0.000	293.8	0.0
F22	1.53E-04	1.86E-05	0.404	0.048	0.004	0.000	295.7	0.1
F23	1.18E-04	1.37E-05	0.313	0.037	0.003	0.000	294.7	0.1
F24	6.89E-05	7.31E-06	0.183	0.020	0.002	0.000	294.4	0.1
F25	5.53E-05	5.55E-06	0.147	0.015	0.001	0.000	294.3	0.1

Table C - 122. Run 3024 data, Mach 10 nozzle, $Re_\infty = 14.4\times10^6$/ft, α = 20°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.32E-03	3.34E-04	9.647	1.010	0.081	0.008	332.2	0.4
B02	3.41E-03	3.48E-04	9.918	1.066	0.083	0.009	333.6	0.4
B03	2.96E-03	3.08E-04	8.607	0.956	0.072	0.008	329.6	0.4
B04	2.48E-03	2.58E-04	7.204	0.800	0.060	0.006	325.6	0.3
B13	2.61E-03	2.66E-04	7.582	0.758	0.063	0.006	330.4	0.1
B14	2.61E-03	2.68E-04	7.583	0.759	0.063	0.006	329.6	0.2
C01	3.36E-03	3.36E-04	9.744	0.992	0.081	0.008	344.6	0.1
C02	3.95E-03	4.08E-04	11.483	1.259	0.096	0.010	339.8	0.6
C03	3.55E-03	3.83E-04	10.315	1.203	0.086	0.010	333.3	0.7
C04	3.24E-03	3.76E-04	9.429	1.198	0.079	0.009	328.6	0.8
C05	2.93E-03	3.75E-04	8.514	1.201	0.071	0.009	325.6	0.9
C06	2.49E-03	3.53E-04	7.258	1.133	0.061	0.009	323.8	0.8
C07	2.09E-03	3.06E-04	6.068	0.983	0.051	0.008	323.0	0.6
C08	1.80E-03	2.55E-04	5.249	0.822	0.044	0.006	325.2	0.2
C09	2.59E-03	2.59E-04	7.513	0.775	0.063	0.006	336.4	0.1
C10	2.91E-03	2.92E-04	8.458	0.854	0.071	0.007	341.3	0.1
C11	3.16E-03	3.16E-04	9.174	0.929	0.077	0.008	341.4	0.1
C12	2.85E-03	2.87E-04	8.279	0.832	0.069	0.007	336.0	0.1
C13	2.73E-03	2.76E-04	7.926	0.793	0.066	0.007	333.0	0.1
C14	2.66E-03	2.77E-04	7.725	0.776	0.065	0.007	330.4	0.1
C15	2.71E-03	2.76E-04	7.862	0.786	0.066	0.007	329.2	0.2
C16	2.53E-03	2.55E-04	7.355	0.738	0.061	0.006	328.0	0.2
C17	2.57E-03	2.58E-04	7.467	0.751	0.062	0.006	329.3	0.1
C18	2.86E-03	2.87E-04	8.295	0.834	0.069	0.007	332.2	0.1
C19	3.27E-03	3.28E-04	9.485	0.956	0.079	0.008	337.5	0.1
D02	3.07E-03	3.15E-04	8.919	0.971	0.075	0.008	332.2	0.3
D03	2.67E-03	2.77E-04	7.761	0.858	0.065	0.007	328.0	0.3
D04	2.34E-03	2.49E-04	6.798	0.779	0.057	0.006	325.0	0.3
D13	2.64E-03	2.67E-04	7.672	0.768	0.064	0.006	331.0	0.1
D14	2.51E-03	2.56E-04	7.298	0.730	0.061	0.006	329.0	0.1
E03	3.32E-03	3.32E-04	9.628	0.991	0.080	0.008	332.6	0.4
F20	1.88E-04	1.88E-05	0.546	0.055	0.005	0.000	295.4	0.0
F21	2.09E-04	2.09E-05	0.607	0.061	0.005	0.001	294.2	0.1
F22	1.44E-04	1.75E-05	0.419	0.056	0.004	0.000	295.6	0.1
F23	2.49E-04	2.73E-05	0.722	0.086	0.006	0.001	295.4	0.1
F24	6.19E-05	8.01E-06	0.179	0.021	0.002	0.000	294.4	0.0
F25	4.23E-05	5.18E-06	0.123	0.014	0.001	0.000	294.2	0.0

Table C - 123. Run 3026 data, Mach 10 nozzle, $Re_\infty = 18.5\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.67E-03	3.11E-04	8.083	0.942	0.066	0.008	321.4	1.0
B02	2.79E-03	3.11E-04	8.452	0.942	0.069	0.008	323.5	0.9
B03	2.52E-03	2.85E-04	7.634	0.864	0.062	0.007	320.9	0.8
B04	2.13E-03	2.36E-04	6.446	0.717	0.053	0.006	317.9	0.7
B13	2.18E-03	2.22E-04	6.625	0.672	0.054	0.005	318.4	0.5
B14	2.19E-03	2.23E-04	6.634	0.675	0.054	0.006	318.1	0.6
C01	3.22E-03	3.42E-04	9.756	1.038	0.079	0.008	328.5	1.0
C02	2.99E-03	3.38E-04	9.072	1.025	0.074	0.008	324.4	1.0
C03	2.54E-03	2.93E-04	7.717	0.888	0.063	0.007	321.1	0.9
C04	2.21E-03	2.51E-04	6.690	0.762	0.054	0.006	317.3	0.8
C05	1.91E-03	2.13E-04	5.790	0.647	0.047	0.005	314.7	0.6
C06	1.76E-03	1.85E-04	5.344	0.561	0.044	0.005	314.0	0.5
C07	1.78E-03	1.80E-04	5.395	0.547	0.044	0.004	315.1	0.4
C08	1.93E-03	1.93E-04	5.860	0.586	0.048	0.005	317.5	0.3
C09	2.57E-03	2.57E-04	7.798	0.780	0.064	0.006	324.5	0.5
C10	2.88E-03	2.88E-04	8.737	0.874	0.071	0.007	327.7	0.5
C11	2.77E-03	2.78E-04	8.399	0.842	0.068	0.007	326.5	0.6
C12	2.65E-03	2.72E-04	8.035	0.825	0.065	0.007	323.2	0.7
C13	2.36E-03	2.47E-04	7.168	0.749	0.058	0.006	320.2	0.7
C14	2.15E-03	2.17E-04	6.508	0.659	0.053	0.005	317.6	0.5
C15	2.05E-03	2.06E-04	6.214	0.624	0.051	0.005	316.8	0.5
C16	2.03E-03	2.04E-04	6.154	0.618	0.050	0.005	316.7	0.4
C17	2.12E-03	2.13E-04	6.441	0.647	0.052	0.005	317.6	0.5
C18	2.33E-03	2.35E-04	7.052	0.711	0.057	0.006	319.6	0.6
C19	2.58E-03	2.60E-04	7.819	0.787	0.064	0.006	322.8	0.6
D02	3.43E-03	3.49E-04	10.387	1.057	0.085	0.009	330.8	0.8
D03	3.32E-03	3.35E-04	10.082	1.016	0.082	0.008	333.9	0.4
D04	2.45E-03	2.73E-04	7.417	0.828	0.060	0.007	318.8	0.9
D13	2.18E-03	2.20E-04	6.622	0.668	0.054	0.005	318.4	0.5
D14	2.10E-03	2.11E-04	6.382	0.641	0.052	0.005	317.6	0.4
F20	1.85E-04	1.85E-05	0.560	0.056	0.005	0.000	297.2	0.2
F21	1.73E-04	1.73E-05	0.524	0.052	0.004	0.000	295.7	0.1
F22	1.52E-04	1.52E-05	0.460	0.046	0.004	0.000	297.0	0.1
F23	8.10E-05	8.41E-06	0.246	0.026	0.002	0.000	295.9	0.0
F24	7.78E-05	8.06E-06	0.236	0.024	0.002	0.000	296.0	0.1
F25	6.56E-05	6.93E-06	0.199	0.021	0.002	0.000	295.8	0.0

Table C - 124. Run 3026 data, Mach 10 nozzle, $Re_{\infty} = 18.5 \times 10^6$/ft, $\alpha = 12°$.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.10E-03	4.15E-04	12.429	1.257	0.101	0.010	334.0	1.0
B02	4.17E-03	4.23E-04	12.650	1.281	0.103	0.010	335.7	1.0
B03	3.98E-03	4.06E-04	12.076	1.231	0.098	0.010	332.9	1.1
B04	3.63E-03	3.79E-04	10.996	1.150	0.090	0.009	329.0	1.1
B13	2.55E-03	2.55E-04	7.725	0.774	0.063	0.006	324.6	0.5
B14	2.48E-03	2.48E-04	7.504	0.751	0.061	0.006	324.0	0.4
C01	4.15E-03	4.16E-04	12.572	1.259	0.102	0.010	339.9	0.9
C02	4.28E-03	4.30E-04	12.976	1.304	0.106	0.011	337.0	1.0
C03	3.98E-03	4.04E-04	12.071	1.226	0.098	0.010	333.3	1.0
C04	3.62E-03	3.73E-04	10.975	1.130	0.089	0.009	328.6	1.0
C05	3.15E-03	3.29E-04	9.545	0.997	0.078	0.008	324.4	0.9
C06	2.67E-03	2.80E-04	8.093	0.850	0.066	0.007	321.6	0.8
C07	2.29E-03	2.36E-04	6.940	0.714	0.057	0.006	320.8	0.6
C08	1.98E-03	1.98E-04	6.000	0.600	0.049	0.005	321.3	0.3
C09	2.51E-03	2.51E-04	7.608	0.761	0.062	0.006	329.2	0.3
C10	2.91E-03	2.91E-04	8.822	0.882	0.072	0.007	333.3	0.4
C11	2.98E-03	2.98E-04	9.036	0.904	0.074	0.007	332.8	0.5
C12	2.96E-03	2.97E-04	8.982	0.899	0.073	0.007	330.6	0.5
C13	3.02E-03	3.02E-04	9.143	0.915	0.075	0.007	328.3	0.6
C14	2.56E-03	2.58E-04	7.749	0.782	0.063	0.006	323.9	0.6
C15	2.27E-03	2.29E-04	6.894	0.693	0.056	0.006	322.0	0.4
C16	2.22E-03	2.23E-04	6.733	0.675	0.055	0.005	321.7	0.4
C17	2.35E-03	2.36E-04	7.129	0.715	0.058	0.006	323.0	0.4
C18	2.58E-03	2.58E-04	7.821	0.783	0.064	0.006	325.5	0.5
C19	2.84E-03	2.85E-04	8.611	0.863	0.070	0.007	329.4	0.5
D02	4.10E-03	4.11E-04	12.413	1.245	0.101	0.010	340.6	0.8
D03	3.56E-03	3.59E-04	10.801	1.089	0.088	0.009	340.0	0.6
D04	3.44E-03	3.50E-04	10.416	1.062	0.085	0.009	329.0	0.9
D13	2.54E-03	2.55E-04	7.690	0.772	0.063	0.006	324.4	0.5
D14	2.38E-03	2.39E-04	7.212	0.724	0.059	0.006	323.1	0.5
F20	1.48E-04	1.54E-05	0.449	0.047	0.004	0.000	297.4	0.1
F21	1.52E-04	1.54E-05	0.462	0.047	0.004	0.000	295.9	0.0
F22	2.09E-04	2.14E-05	0.634	0.065	0.005	0.001	297.5	0.0
F23	1.05E-04	1.06E-05	0.317	0.032	0.003	0.000	296.2	0.1
F24	7.11E-05	7.65E-06	0.216	0.023	0.002	0.000	296.1	0.0
F25	5.50E-05	5.77E-06	0.167	0.017	0.001	0.000	295.9	0.0

Table C - 125. Run 3026 data, Mach 10 nozzle, $Re_\infty = 18.5\times10^6$/ft, $\alpha = 16°$.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.31E-03	4.31E-04	13.038	1.304	0.106	0.011	342.5	0.6
B02	4.38E-03	4.38E-04	13.254	1.326	0.108	0.011	344.3	0.6
B03	4.31E-03	4.31E-04	13.023	1.302	0.106	0.011	341.8	0.6
B04	4.26E-03	4.27E-04	12.889	1.289	0.105	0.011	338.9	0.7
B13	2.58E-03	2.58E-04	7.801	0.780	0.064	0.006	328.7	0.3
B14	2.54E-03	2.54E-04	7.681	0.769	0.063	0.006	328.1	0.3
C01	4.11E-03	4.11E-04	12.437	1.245	0.101	0.010	346.8	0.5
C02	4.34E-03	4.34E-04	13.112	1.312	0.107	0.011	344.9	0.6
C03	4.29E-03	4.29E-04	12.956	1.296	0.106	0.011	342.1	0.7
C04	4.16E-03	4.17E-04	12.572	1.259	0.103	0.010	337.9	0.7
C05	3.87E-03	3.90E-04	11.702	1.178	0.095	0.010	333.6	0.8
C06	3.51E-03	3.57E-04	10.601	1.078	0.087	0.009	330.2	0.8
C07	2.96E-03	3.03E-04	8.955	0.915	0.073	0.007	327.4	0.7
C08	2.08E-03	2.08E-04	6.281	0.629	0.051	0.005	324.4	0.3
C09	2.44E-03	2.45E-04	7.392	0.740	0.060	0.006	332.3	0.3
C10	2.87E-03	2.87E-04	8.680	0.868	0.071	0.007	337.2	0.3
C11	2.97E-03	2.97E-04	8.986	0.899	0.073	0.007	337.1	0.3
C12	2.77E-03	2.77E-04	8.378	0.839	0.068	0.007	334.4	0.3
C13	2.83E-03	2.84E-04	8.543	0.860	0.070	0.007	332.6	0.3
C14	2.85E-03	2.86E-04	8.629	0.864	0.070	0.007	329.3	0.4
C15	2.57E-03	2.59E-04	7.769	0.783	0.063	0.006	326.7	0.4
C16	2.38E-03	2.38E-04	7.184	0.719	0.059	0.006	325.7	0.3
C17	2.50E-03	2.50E-04	7.546	0.755	0.062	0.006	327.2	0.4
C18	2.67E-03	2.68E-04	8.086	0.809	0.066	0.007	329.9	0.3
C19	3.06E-03	3.07E-04	9.255	0.928	0.076	0.008	334.7	0.4
D02	4.19E-03	4.19E-04	12.678	1.268	0.103	0.010	347.4	0.5
D03	3.92E-03	3.92E-04	11.846	1.186	0.097	0.010	346.3	0.5
D04	4.24E-03	4.29E-04	12.830	1.296	0.105	0.011	338.4	0.9
D13	2.62E-03	2.62E-04	7.926	0.793	0.065	0.006	328.8	0.3
D14	2.53E-03	2.54E-04	7.664	0.767	0.063	0.006	327.5	0.4
F20	1.50E-04	1.55E-05	0.453	0.047	0.004	0.000	297.6	0.1
F21	1.54E-04	1.58E-05	0.467	0.048	0.004	0.000	296.1	0.1
F22	1.82E-04	1.97E-05	0.549	0.060	0.004	0.000	297.8	0.2
F23	1.45E-04	1.63E-05	0.438	0.049	0.004	0.000	296.6	0.2
F24	1.01E-04	1.01E-05	0.304	0.030	0.002	0.000	296.3	0.1
F25	7.19E-05	7.19E-06	0.217	0.022	0.002	0.000	296.0	0.0

Table C - 126. Run 3026 data, Mach 10 nozzle, $Re_\infty = 18.5\times10^6$/ft, α = 20°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.30E-03	4.30E-04	12.785	1.279	0.105	0.011	348.4	0.5
B02	4.30E-03	4.30E-04	12.807	1.281	0.106	0.011	349.8	0.5
B03	4.34E-03	4.34E-04	12.919	1.292	0.106	0.011	348.0	0.5
B04	4.25E-03	4.26E-04	12.663	1.267	0.104	0.010	345.4	0.5
B13	2.56E-03	2.56E-04	7.614	0.762	0.063	0.006	331.8	0.3
B14	2.63E-03	2.63E-04	7.813	0.781	0.064	0.006	331.7	0.3
C01	4.02E-03	4.02E-04	11.963	1.197	0.099	0.010	351.5	0.4
C02	4.28E-03	4.28E-04	12.747	1.275	0.105	0.011	350.3	0.5
C03	4.30E-03	4.30E-04	12.809	1.281	0.106	0.011	348.2	0.5
C04	4.33E-03	4.33E-04	12.889	1.289	0.106	0.011	344.9	0.6
C05	4.24E-03	4.25E-04	12.634	1.264	0.104	0.010	341.4	0.6
C06	4.07E-03	4.08E-04	12.101	1.213	0.100	0.010	338.4	0.7
C07	3.54E-03	3.57E-04	10.551	1.061	0.087	0.009	334.6	0.7
C08	2.21E-03	2.21E-04	6.567	0.657	0.054	0.005	327.4	0.3
C09	2.33E-03	2.33E-04	6.930	0.695	0.057	0.006	334.4	0.2
C10	2.82E-03	2.82E-04	8.385	0.839	0.069	0.007	340.1	0.3
C11	2.97E-03	2.97E-04	8.854	0.885	0.073	0.007	340.5	0.3
C12	2.77E-03	2.77E-04	8.254	0.825	0.068	0.007	337.5	0.3
C13	2.63E-03	2.63E-04	7.814	0.782	0.064	0.006	335.0	0.2
C14	2.78E-03	2.79E-04	8.271	0.832	0.068	0.007	333.1	0.3
C15	2.79E-03	2.79E-04	8.300	0.830	0.068	0.007	331.3	0.4
C16	2.58E-03	2.59E-04	7.681	0.770	0.063	0.006	329.6	0.4
C17	2.59E-03	2.59E-04	7.703	0.771	0.063	0.006	330.8	0.3
C18	2.80E-03	2.80E-04	8.340	0.834	0.069	0.007	333.7	0.4
C19	3.30E-03	3.30E-04	9.810	0.983	0.081	0.008	339.7	0.4
D02	4.12E-03	4.12E-04	12.271	1.227	0.101	0.010	352.1	0.4
D03	3.98E-03	3.98E-04	11.835	1.184	0.097	0.010	351.2	0.4
D04	4.46E-03	4.47E-04	13.282	1.331	0.109	0.011	346.2	0.5
D13	2.56E-03	2.56E-04	7.623	0.763	0.063	0.006	331.9	0.2
D14	2.56E-03	2.56E-04	7.615	0.762	0.063	0.006	330.9	0.3
F20	1.86E-04	1.86E-05	0.554	0.055	0.005	0.000	297.9	0.0
F21	1.97E-04	1.99E-05	0.587	0.059	0.005	0.000	296.5	0.1
F22	1.28E-04	1.28E-05	0.380	0.038	0.003	0.000	297.8	0.0
F23	2.44E-04	2.58E-05	0.725	0.076	0.006	0.001	297.3	0.0
F24	7.79E-05	8.18E-06	0.232	0.024	0.002	0.000	296.4	0.0
F25	5.63E-05	5.74E-06	0.168	0.017	0.001	0.000	296.1	0.0

Table C - 127. Run 3026 data, Mach 10 nozzle, $Re_\infty = 18.5\times10^6$/ft, α = 24°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.34E-03	4.34E-04	14.073	1.410	0.110	0.011	353.3	0.2
B02	4.40E-03	4.40E-04	14.294	1.432	0.112	0.011	354.8	0.0
B03	4.49E-03	4.49E-04	14.569	1.460	0.114	0.011	353.6	0.0
B04	4.32E-03	4.32E-04	14.027	1.407	0.110	0.011	350.7	0.0
B13	2.36E-03	2.36E-04	7.647	0.765	0.060	0.006	333.6	0.0
B14	2.35E-03	2.35E-04	7.632	0.763	0.060	0.006	333.5	0.1
C01	4.02E-03	4.02E-04	13.046	1.307	0.102	0.010	355.5	0.1
C02	4.34E-03	4.34E-04	14.078	1.411	0.110	0.011	354.9	0.0
C03	4.37E-03	4.37E-04	14.190	1.422	0.111	0.011	353.5	0.1
C04	4.43E-03	4.43E-04	14.389	1.442	0.113	0.011	350.9	0.1
C05	4.47E-03	4.47E-04	14.516	1.455	0.114	0.011	348.4	0.2
C06	4.51E-03	4.51E-04	14.625	1.468	0.114	0.011	346.4	0.0
C07	4.35E-03	4.36E-04	14.123	1.423	0.110	0.011	343.2	0.2
C08	3.22E-03	3.27E-04	10.461	1.074	0.082	0.008	333.4	0.3
C09	2.34E-03	2.35E-04	7.602	0.765	0.059	0.006	336.0	0.1
C10	2.74E-03	2.74E-04	8.888	0.890	0.069	0.007	342.2	0.1
C11	2.95E-03	2.95E-04	9.582	0.959	0.075	0.007	343.3	0.2
C12	2.67E-03	2.67E-04	8.662	0.866	0.068	0.007	339.9	0.0
C13	2.51E-03	2.51E-04	8.138	0.814	0.064	0.006	336.8	0.0
C14	2.36E-03	2.36E-04	7.671	0.768	0.060	0.006	334.2	0.1
C15	2.41E-03	2.41E-04	7.808	0.781	0.061	0.006	333.3	0.2
C16	2.61E-03	2.61E-04	8.478	0.848	0.066	0.007	333.1	0.0
C17	2.58E-03	2.58E-04	8.384	0.839	0.066	0.007	333.8	0.1
C18	2.88E-03	2.89E-04	9.364	0.937	0.073	0.007	337.3	0.0
C19	3.50E-03	3.50E-04	11.345	1.136	0.089	0.009	344.7	0.1
D02	4.17E-03	4.17E-04	13.545	1.357	0.106	0.011	356.1	0.2
D03	4.02E-03	4.02E-04	13.063	1.309	0.102	0.010	355.2	0.0
D04	4.37E-03	4.37E-04	14.176	1.424	0.111	0.011	351.1	0.1
D13	2.36E-03	2.36E-04	7.664	0.767	0.060	0.006	333.6	0.2
D14	2.30E-03	2.30E-04	7.466	0.747	0.058	0.006	332.6	0.0
F20	1.50E-04	1.50E-05	0.487	0.049	0.004	0.000	298.0	0.1
F21	1.85E-04	1.85E-05	0.601	0.060	0.005	0.000	296.7	0.1
F22	1.86E-04	1.86E-05	0.603	0.061	0.005	0.000	298.0	0.1
F23	2.94E-04	2.94E-05	0.955	0.096	0.007	0.001	298.1	0.0
F24	9.26E-05	9.27E-06	0.301	0.030	0.002	0.000	296.5	0.1
F25	8.36E-05	8.38E-06	0.271	0.027	0.002	0.000	296.2	0.1

Table C - 128. Run 3025 data, Mach 10 nozzle, $Re_\infty = 19.2\times10^6$/ft, α = 0°.

Gauge	St	ΔSt	$St\times(ReD)^{(1/2)}$	$\Delta St\times(ReD)^{(1/2)}$	$St\times(ReD)^{(1/5)}$	$\Delta St\times(ReD)^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.04E-03	2.50E-04	6.300	0.764	0.051	0.006	314.6	1.3
B02	2.15E-03	2.89E-04	6.644	0.878	0.053	0.007	315.8	1.5
B03	1.98E-03	2.47E-04	6.120	0.752	0.049	0.006	313.8	1.3
B04	1.73E-03	2.04E-04	5.355	0.624	0.043	0.005	311.1	1.2
B13	1.86E-03	2.08E-04	5.739	0.631	0.046	0.005	311.6	1.5
B14	1.78E-03	2.04E-04	5.510	0.617	0.044	0.005	310.8	1.4
C01	2.31E-03	2.78E-04	7.159	0.851	0.058	0.007	318.1	1.5
C02	2.08E-03	2.73E-04	6.441	0.831	0.052	0.007	315.4	1.3
C03	1.90E-03	2.45E-04	5.879	0.748	0.047	0.006	314.1	1.3
C04	1.74E-03	1.99E-04	5.395	0.612	0.043	0.005	311.3	1.2
C05	1.68E-03	1.86E-04	5.195	0.569	0.042	0.005	310.2	1.2
C06	1.74E-03	1.87E-04	5.393	0.570	0.043	0.005	310.5	1.3
C07	1.89E-03	2.06E-04	5.831	0.625	0.047	0.005	311.8	1.5
C08	2.14E-03	2.28E-04	6.610	0.692	0.053	0.006	314.3	1.6
C09	2.60E-03	2.75E-04	8.033	0.837	0.065	0.007	319.0	2.0
C10	2.79E-03	3.08E-04	8.642	0.933	0.070	0.008	320.4	2.2
C11	2.58E-03	2.73E-04	7.982	0.833	0.064	0.007	318.4	2.0
C12	2.13E-03	2.33E-04	6.579	0.706	0.053	0.006	314.4	1.7
C13	1.95E-03	2.25E-04	6.023	0.680	0.048	0.006	312.8	1.6
C14	1.79E-03	2.10E-04	5.526	0.635	0.044	0.005	310.6	1.5
C15	1.77E-03	2.09E-04	5.478	0.632	0.044	0.005	310.6	1.5
C16	1.76E-03	2.03E-04	5.457	0.615	0.044	0.005	311.0	1.3
C17	1.93E-03	2.21E-04	5.984	0.674	0.048	0.005	313.3	1.3
C18	2.17E-03	2.53E-04	6.724	0.775	0.054	0.006	316.1	1.3
C19	2.38E-03	2.72E-04	7.373	0.836	0.059	0.007	318.8	1.5
D02	2.17E-03	2.75E-04	6.699	0.835	0.054	0.007	315.8	1.5
D03	1.92E-03	2.32E-04	5.944	0.708	0.048	0.006	313.1	1.3
D04	1.72E-03	2.04E-04	5.321	0.623	0.043	0.005	311.1	1.2
D13	1.92E-03	2.16E-04	5.938	0.652	0.048	0.005	311.7	1.6
D14	1.83E-03	2.10E-04	5.664	0.635	0.046	0.005	311.0	1.5
E03	2.02E-03	2.51E-04	6.263	0.768	0.050	0.006	314.8	1.3
F20	3.47E-05	1.49E-05	0.107	0.046	0.001	0.000	294.2	0.0
F21	3.09E-05	1.09E-05	0.096	0.033	0.001	0.000	292.8	0.0
F22	6.22E-05	2.09E-05	0.192	0.064	0.002	0.001	294.5	0.0
F23	9.98E-05	3.19E-05	0.309	0.101	0.002	0.001	295.1	0.2
F24	4.89E-05	1.39E-05	0.151	0.044	0.001	0.000	294.5	0.1
F25	5.73E-05	1.80E-05	0.178	0.057	0.001	0.000	294.6	0.1

Table C - 129. Run 3025 data, Mach 10 nozzle, $Re_{\infty} = 19.2\times10^6$/ft, α = 4°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.96E-03	3.96E-04	12.116	1.213	0.098	0.010	329.7	1.0
B02	4.35E-03	4.37E-04	13.317	1.339	0.108	0.011	332.3	1.2
B03	3.94E-03	3.97E-04	12.077	1.215	0.098	0.010	328.9	1.1
B04	3.43E-03	3.45E-04	10.489	1.056	0.085	0.009	324.3	0.9
B13	2.22E-03	2.22E-04	6.804	0.681	0.055	0.006	319.3	0.4
B14	2.21E-03	2.21E-04	6.774	0.677	0.055	0.005	318.7	0.4
C01	4.24E-03	4.25E-04	12.977	1.301	0.105	0.011	334.0	1.1
C02	4.25E-03	4.26E-04	13.027	1.306	0.106	0.011	331.6	1.1
C03	3.93E-03	3.94E-04	12.038	1.208	0.097	0.010	329.3	1.0
C04	3.44E-03	3.48E-04	10.542	1.066	0.085	0.009	324.4	1.0
C05	2.95E-03	2.99E-04	9.027	0.915	0.073	0.007	321.3	0.8
C06	2.47E-03	2.50E-04	7.574	0.765	0.061	0.006	319.4	0.6
C07	2.29E-03	2.30E-04	7.012	0.704	0.057	0.006	319.6	0.5
C08	2.38E-03	2.39E-04	7.298	0.731	0.059	0.006	322.2	0.4
C09	2.85E-03	2.87E-04	8.728	0.877	0.071	0.007	328.5	0.5
C10	3.15E-03	3.16E-04	9.640	0.966	0.078	0.008	331.2	0.5
C11	3.17E-03	3.17E-04	9.711	0.971	0.079	0.008	329.4	0.6
C12	2.46E-03	2.46E-04	7.525	0.753	0.061	0.006	323.0	0.5
C13	2.26E-03	2.27E-04	6.926	0.693	0.056	0.006	320.7	0.4
C14	2.13E-03	2.14E-04	6.532	0.654	0.053	0.005	318.3	0.4
C15	2.17E-03	2.17E-04	6.631	0.664	0.054	0.005	318.4	0.4
C16	2.29E-03	2.29E-04	7.002	0.702	0.057	0.006	319.2	0.4
C17	2.62E-03	2.64E-04	8.010	0.806	0.065	0.007	322.6	0.5
C18	3.07E-03	3.13E-04	9.407	0.957	0.076	0.008	327.0	0.5
C19	3.38E-03	3.42E-04	10.349	1.047	0.084	0.008	330.9	0.6
D02	4.07E-03	4.08E-04	12.466	1.249	0.101	0.010	331.1	1.0
D03	3.68E-03	3.68E-04	11.262	1.128	0.091	0.009	327.2	0.9
D04	3.29E-03	3.29E-04	10.081	1.009	0.082	0.008	323.9	0.8
D13	2.22E-03	2.22E-04	6.791	0.679	0.055	0.006	319.4	0.4
D14	2.23E-03	2.23E-04	6.819	0.684	0.055	0.006	319.0	0.4
E03	4.20E-03	4.23E-04	12.867	1.295	0.104	0.010	330.6	1.2
F20	2.11E-04	2.12E-05	0.646	0.065	0.005	0.001	295.3	0.0
F21	1.73E-04	1.77E-05	0.530	0.054	0.004	0.000	293.7	0.1
F22	2.52E-04	2.53E-05	0.770	0.077	0.006	0.001	295.7	0.0
F23	6.51E-05	7.19E-06	0.199	0.022	0.002	0.000	295.0	0.1
F24	9.13E-05	1.02E-05	0.280	0.031	0.002	0.000	294.8	0.0
F25	8.71E-05	9.25E-06	0.267	0.028	0.002	0.000	294.8	0.1

Table C - 130. Run 3025 data, Mach 10 nozzle, $Re_\infty = 19.2\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.60E-03	3.61E-04	11.104	1.112	0.090	0.009	336.5	0.6
B02	4.17E-03	4.18E-04	12.859	1.287	0.104	0.010	340.9	0.7
B03	3.88E-03	3.88E-04	11.952	1.195	0.096	0.010	337.1	0.7
B04	3.48E-03	3.50E-04	10.733	1.077	0.087	0.009	332.0	0.7
B13	2.29E-03	2.30E-04	7.040	0.709	0.057	0.006	323.4	0.4
B14	2.23E-03	2.23E-04	6.859	0.688	0.055	0.006	322.7	0.4
C01	3.99E-03	3.99E-04	12.282	1.230	0.099	0.010	341.9	0.6
C02	3.97E-03	3.97E-04	12.233	1.224	0.099	0.010	339.5	0.6
C03	3.84E-03	3.85E-04	11.844	1.185	0.096	0.010	337.4	0.7
C04	3.60E-03	3.61E-04	11.083	1.112	0.089	0.009	332.6	0.7
C05	3.36E-03	3.41E-04	10.344	1.051	0.083	0.008	329.3	0.8
C06	2.98E-03	3.07E-04	9.175	0.947	0.074	0.008	326.3	0.8
C07	2.65E-03	2.70E-04	8.154	0.831	0.066	0.007	325.2	0.6
C08	2.24E-03	2.25E-04	6.912	0.692	0.056	0.006	325.6	0.3
C09	2.54E-03	2.54E-04	7.827	0.784	0.063	0.006	331.9	0.3
C10	2.95E-03	2.96E-04	9.102	0.911	0.073	0.007	335.7	0.4
C11	3.08E-03	3.08E-04	9.476	0.948	0.076	0.008	334.8	0.5
C12	2.78E-03	2.82E-04	8.559	0.870	0.069	0.007	328.6	0.6
C13	2.49E-03	2.56E-04	7.683	0.788	0.062	0.006	325.4	0.6
C14	2.15E-03	2.17E-04	6.634	0.668	0.054	0.005	322.0	0.4
C15	2.10E-03	2.10E-04	6.464	0.647	0.052	0.005	321.9	0.4
C16	2.11E-03	2.11E-04	6.511	0.651	0.053	0.005	322.6	0.3
C17	2.23E-03	2.24E-04	6.871	0.689	0.055	0.006	325.6	0.3
C18	2.42E-03	2.43E-04	7.469	0.750	0.060	0.006	329.8	0.1
C19	2.71E-03	2.73E-04	8.350	0.840	0.067	0.007	334.2	0.2
D02	3.78E-03	3.79E-04	11.649	1.166	0.094	0.009	338.4	0.5
D03	3.42E-03	3.42E-04	10.542	1.055	0.085	0.009	333.9	0.5
D04	3.05E-03	3.05E-04	9.389	0.939	0.076	0.008	329.8	0.5
D13	2.34E-03	2.36E-04	7.196	0.726	0.058	0.006	323.7	0.4
D14	2.20E-03	2.21E-04	6.779	0.681	0.055	0.005	322.7	0.4
E03	4.02E-03	4.03E-04	12.398	1.241	0.100	0.010	339.1	0.6
F20	1.81E-04	1.88E-05	0.557	0.058	0.004	0.000	295.8	0.0
F21	1.72E-04	1.73E-05	0.531	0.053	0.004	0.000	294.2	0.1
F22	1.85E-04	1.88E-05	0.571	0.058	0.005	0.000	296.1	0.1
F23	8.43E-05	8.67E-06	0.260	0.027	0.002	0.000	295.2	0.1
F24	9.01E-05	9.43E-06	0.278	0.029	0.002	0.000	295.0	0.1
F25	7.30E-05	7.93E-06	0.225	0.024	0.002	0.000	295.0	0.0
F25	7.30E-05	7.93E-06	0.225	0.024	0.002	0.000	295.0	0.0

Table C - 131. Run 3025 data, Mach 10 nozzle, $Re_{\infty} = 19.2\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.52E-03	4.67E-04	13.805	1.421	0.112	0.012	344.6	0.9
B02	4.29E-03	4.29E-04	13.079	1.309	0.106	0.011	347.0	0.6
B03	4.15E-03	4.16E-04	12.661	1.269	0.103	0.010	343.6	0.6
B04	4.00E-03	4.03E-04	12.219	1.229	0.099	0.010	339.2	0.7
B13	2.59E-03	2.59E-04	7.888	0.791	0.064	0.006	327.9	0.4
B14	2.46E-03	2.47E-04	7.494	0.752	0.061	0.006	326.7	0.4
C01	3.99E-03	3.99E-04	12.186	1.219	0.099	0.010	347.3	0.5
C02	4.09E-03	4.10E-04	12.486	1.249	0.101	0.010	345.3	0.5
C03	4.18E-03	4.19E-04	12.741	1.277	0.103	0.010	344.2	0.6
C04	4.04E-03	4.06E-04	12.331	1.237	0.100	0.010	339.8	0.7
C05	4.04E-03	4.08E-04	12.322	1.241	0.100	0.010	337.5	0.8
C06	3.80E-03	3.86E-04	11.592	1.175	0.094	0.010	334.5	0.8
C07	3.21E-03	3.25E-04	9.782	0.988	0.079	0.008	331.6	0.6
C08	2.15E-03	2.15E-04	6.547	0.657	0.053	0.005	328.0	0.2
C09	2.48E-03	2.48E-04	7.576	0.758	0.061	0.006	334.5	0.3
C10	2.96E-03	2.96E-04	9.022	0.902	0.073	0.007	339.3	0.3
C11	3.07E-03	3.07E-04	9.354	0.935	0.076	0.008	338.8	0.3
C12	3.06E-03	3.06E-04	9.330	0.933	0.076	0.008	334.2	0.4
C13	3.02E-03	3.03E-04	9.219	0.925	0.075	0.008	331.3	0.5
C14	2.54E-03	2.58E-04	7.763	0.786	0.063	0.006	326.5	0.5
C15	2.36E-03	2.38E-04	7.201	0.724	0.058	0.006	325.7	0.4
C16	2.33E-03	2.34E-04	7.094	0.713	0.058	0.006	326.0	0.4
C17	2.32E-03	2.33E-04	7.090	0.711	0.058	0.006	328.4	0.3
C18	2.61E-03	2.63E-04	7.957	0.801	0.065	0.007	332.7	0.4
C19	2.81E-03	2.82E-04	8.567	0.859	0.070	0.007	337.3	0.4
D02	3.96E-03	3.97E-04	12.084	1.211	0.098	0.010	344.0	0.5
D03	3.74E-03	3.77E-04	11.417	1.148	0.093	0.009	339.7	0.6
D04	3.49E-03	3.53E-04	10.650	1.075	0.086	0.009	335.7	0.6
D13	2.61E-03	2.62E-04	7.962	0.797	0.065	0.006	328.2	0.4
D14	2.46E-03	2.47E-04	7.495	0.752	0.061	0.006	326.8	0.4
E03	4.19E-03	4.20E-04	12.794	1.281	0.104	0.010	345.2	0.6
F20	1.42E-04	1.44E-05	0.434	0.044	0.004	0.000	295.9	0.0
F21	1.53E-04	1.54E-05	0.466	0.047	0.004	0.000	294.4	0.1
F22	2.14E-04	2.18E-05	0.653	0.066	0.005	0.001	296.5	0.0
F23	1.14E-04	1.18E-05	0.347	0.036	0.003	0.000	295.4	0.1
F24	7.65E-05	7.71E-06	0.233	0.023	0.002	0.000	295.1	0.1
F25	6.44E-05	6.61E-06	0.197	0.020	0.002	0.000	295.0	0.1

Table C - 132. Run 3025 data, Mach 10 nozzle, $Re_\infty = 19.2\times10^6$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)^(1/2)	ΔSt×(ReD)^(1/2)	St×(ReD)^(1/5)	ΔSt×(ReD)^(1/5)	Tw (K)	ΔTw (K)
A03	5.14E-03	5.15E-04	15.802	1.580	0.128	0.013	353.2	0.6
B02	4.38E-03	4.38E-04	13.439	1.345	0.109	0.011	352.0	0.4
B03	4.32E-03	4.32E-04	13.283	1.330	0.107	0.011	349.1	0.4
B04	4.27E-03	4.27E-04	13.128	1.315	0.106	0.011	345.5	0.5
B13	2.63E-03	2.64E-04	8.091	0.809	0.065	0.007	331.2	0.1
B14	2.56E-03	2.56E-04	7.853	0.785	0.063	0.006	330.0	0.2
C01	3.98E-03	3.98E-04	12.224	1.223	0.099	0.010	351.4	0.3
C02	4.16E-03	4.16E-04	12.772	1.278	0.103	0.010	349.9	0.3
C03	4.32E-03	4.32E-04	13.280	1.329	0.107	0.011	349.7	0.4
C04	4.26E-03	4.26E-04	13.081	1.311	0.106	0.011	345.8	0.5
C05	4.35E-03	4.36E-04	13.370	1.341	0.108	0.011	344.3	0.5
C06	4.30E-03	4.32E-04	13.214	1.332	0.107	0.011	342.1	0.6
C07	3.78E-03	3.84E-04	11.601	1.189	0.094	0.010	338.1	0.6
C08	2.05E-03	2.06E-04	6.304	0.638	0.051	0.005	329.3	0.0
C09	2.40E-03	2.40E-04	7.363	0.736	0.060	0.006	336.3	0.1
C10	2.93E-03	2.93E-04	9.001	0.900	0.073	0.007	341.9	0.1
C11	3.06E-03	3.06E-04	9.412	0.942	0.076	0.008	341.8	0.2
C12	2.87E-03	2.88E-04	8.801	0.881	0.071	0.007	337.2	0.2
C13	2.94E-03	2.96E-04	9.016	0.906	0.073	0.007	335.0	0.1
C14	2.84E-03	2.84E-04	8.720	0.873	0.070	0.007	331.0	0.4
C15	2.58E-03	2.58E-04	7.917	0.793	0.064	0.006	329.3	0.3
C16	2.48E-03	2.48E-04	7.610	0.761	0.062	0.006	329.3	0.2
C17	2.45E-03	2.45E-04	7.522	0.753	0.061	0.006	331.2	0.2
C18	2.76E-03	2.76E-04	8.468	0.847	0.068	0.007	335.9	0.2
C19	2.99E-03	3.00E-04	9.200	0.922	0.074	0.007	340.7	0.3
D02	4.17E-03	4.17E-04	12.805	1.283	0.104	0.010	349.1	0.4
D03	4.06E-03	4.06E-04	12.469	1.252	0.101	0.010	345.3	0.5
D04	3.99E-03	4.02E-04	12.266	1.244	0.099	0.010	341.9	0.6
D13	2.62E-03	2.63E-04	8.063	0.806	0.065	0.007	331.4	0.1
D14	2.53E-03	2.53E-04	7.762	0.776	0.063	0.006	329.9	0.2
E03	4.36E-03	4.36E-04	13.398	1.341	0.108	0.011	350.6	0.4
F20	1.58E-04	1.67E-05	0.484	0.052	0.004	0.000	296.0	0.1
F21	1.59E-04	1.64E-05	0.488	0.051	0.004	0.000	294.6	0.1
F22	1.90E-04	2.16E-05	0.582	0.065	0.005	0.001	296.7	0.1
F23	1.42E-04	1.44E-05	0.437	0.045	0.004	0.000	295.7	0.1
F24	1.01E-04	1.04E-05	0.310	0.032	0.003	0.000	295.2	0.0
F25	8.29E-05	8.33E-06	0.255	0.026	0.002	0.000	295.1	0.1

Table C - 133. Run 3036 data, Mach 10 nozzle, $Re_\infty = 20.1\times10^6$/ft, α = 0°.

Gauge	St	ΔSt	$St\times(ReD)^{(1/2)}$	$\Delta St\times(ReD)^{(1/2)}$	$St\times(ReD)^{(1/5)}$	$\Delta St\times(ReD)^{(1/5)}$	Tw (K)	ΔTw (K)
A03	1.75E-03	1.86E-04	5.612	0.593	0.044	0.005	313.7	1.2
B02	1.89E-03	2.26E-04	6.054	0.716	0.048	0.006	315.9	1.3
B04	1.65E-03	1.88E-04	5.268	0.595	0.042	0.005	312.3	1.3
B13	1.74E-03	1.92E-04	5.572	0.609	0.044	0.005	313.2	1.3
C01	3.23E-03	4.87E-04	10.324	1.542	0.081	0.012	326.1	2.8
C02	2.91E-03	5.71E-04	9.321	1.807	0.074	0.014	323.4	2.6
C03	2.32E-03	5.27E-04	7.420	1.668	0.059	0.013	319.5	2.2
C04	1.75E-03	1.90E-04	5.595	0.607	0.044	0.005	313.2	1.3
C05	1.59E-03	1.73E-04	5.080	0.550	0.040	0.004	311.7	1.2
C06	1.66E-03	1.77E-04	5.308	0.566	0.042	0.004	312.5	1.2
C07	1.77E-03	1.89E-04	5.674	0.603	0.045	0.005	313.4	1.3
C08	2.03E-03	2.12E-04	6.499	0.676	0.051	0.005	315.7	1.5
C09	2.48E-03	2.60E-04	7.952	0.827	0.063	0.007	320.2	1.9
C10	2.63E-03	2.69E-04	8.417	0.858	0.066	0.007	321.7	1.9
C11	2.43E-03	2.51E-04	7.773	0.797	0.061	0.006	319.5	1.8
C12	1.96E-03	2.10E-04	6.285	0.666	0.050	0.005	315.5	1.6
C13	1.79E-03	1.97E-04	5.743	0.623	0.045	0.005	313.5	1.4
C14	1.65E-03	1.85E-04	5.295	0.583	0.042	0.005	312.2	1.3
C15	1.60E-03	1.73E-04	5.126	0.549	0.040	0.004	311.8	1.3
C16	1.63E-03	1.71E-04	5.233	0.544	0.041	0.004	312.1	1.2
C17	1.74E-03	1.80E-04	5.573	0.575	0.044	0.005	313.4	1.2
C18	1.93E-03	2.00E-04	6.184	0.645	0.049	0.005	315.3	1.2
C19	2.06E-03	2.26E-04	6.610	0.730	0.052	0.006	318.9	1.1
D02	1.82E-03	1.97E-04	5.815	0.626	0.046	0.005	314.3	1.3
D03	1.68E-03	1.81E-04	5.373	0.575	0.042	0.005	312.9	1.2
D04	1.62E-03	1.73E-04	5.171	0.550	0.041	0.004	312.1	1.2
D13	1.73E-03	1.95E-04	5.531	0.615	0.044	0.005	312.9	1.4
D14	1.68E-03	1.90E-04	5.363	0.599	0.042	0.005	312.4	1.3
F20	3.51E-05	1.64E-05	0.112	0.052	0.001	0.000	297.1	0.2
F21	2.80E-05	1.27E-05	0.090	0.040	0.001	0.000	297.1	0.2
F22	5.68E-05	2.37E-05	0.182	0.075	0.001	0.001	297.2	0.1

Table C - 134. Run 3036 data, Mach 10 nozzle, $Re_\infty = 20.1 \times 10^6$/ft, α = 4°.

Gauge	St	ΔSt	$St \times (ReD)^{(1/2)}$	$\Delta St \times (ReD)^{(1/2)}$	$St \times (ReD)^{(1/5)}$	$\Delta St \times (ReD)^{(1/5)}$	Tw (K)	ΔTw (K)
A03	2.47E-03	2.69E-04	7.828	0.853	0.062	0.007	321.8	0.7
B02	3.63E-03	3.86E-04	11.512	1.223	0.091	0.010	328.9	1.1
B04	1.98E-03	2.03E-04	6.279	0.645	0.050	0.005	319.0	0.5
B13	2.08E-03	2.08E-04	6.591	0.660	0.052	0.005	320.4	0.4
C01	3.81E-03	3.85E-04	12.091	1.220	0.096	0.010	340.5	0.5
C02	3.63E-03	3.67E-04	11.505	1.165	0.091	0.009	337.6	0.4
C03	2.86E-03	2.87E-04	9.065	0.910	0.072	0.007	330.8	0.3
C04	2.14E-03	2.18E-04	6.775	0.691	0.054	0.005	320.4	0.5
C05	1.80E-03	1.80E-04	5.696	0.570	0.045	0.005	317.8	0.3
C06	1.76E-03	1.77E-04	5.586	0.563	0.044	0.004	318.4	0.3
C07	1.84E-03	1.87E-04	5.848	0.594	0.046	0.005	319.7	0.2
C08	2.09E-03	2.11E-04	6.636	0.670	0.053	0.005	322.6	0.2
C09	2.58E-03	2.59E-04	8.193	0.822	0.065	0.007	328.7	0.4
C10	2.87E-03	2.87E-04	9.094	0.909	0.072	0.007	331.0	0.5
C11	2.76E-03	2.77E-04	8.737	0.877	0.069	0.007	328.6	0.5
C12	2.23E-03	2.25E-04	7.070	0.714	0.056	0.006	323.0	0.5
C13	2.06E-03	2.06E-04	6.533	0.654	0.052	0.005	320.5	0.4
C14	1.96E-03	1.96E-04	6.209	0.622	0.049	0.005	319.0	0.4
C15	1.85E-03	1.86E-04	5.877	0.589	0.047	0.005	318.1	0.3
C16	1.86E-03	1.87E-04	5.908	0.593	0.047	0.005	318.3	0.3
C17	2.06E-03	2.06E-04	6.522	0.654	0.052	0.005	320.2	0.4
C18	2.22E-03	2.22E-04	7.030	0.704	0.056	0.006	322.4	0.4
C19	2.42E-03	2.42E-04	7.659	0.768	0.061	0.006	326.3	0.5
D02	2.61E-03	2.77E-04	8.288	0.877	0.066	0.007	323.1	0.7
D03	2.30E-03	2.41E-04	7.288	0.762	0.058	0.006	320.7	0.6
D04	2.05E-03	2.10E-04	6.504	0.665	0.052	0.005	319.0	0.5
D13	1.91E-03	1.91E-04	6.055	0.607	0.048	0.005	319.4	0.4
D14	1.85E-03	1.85E-04	5.855	0.587	0.046	0.005	318.7	0.3
F20	2.38E-04	2.39E-05	0.754	0.076	0.006	0.001	298.3	0.1
F21	1.91E-04	1.91E-05	0.604	0.061	0.005	0.000	298.0	0.1
F22	2.48E-04	2.49E-05	0.788	0.079	0.006	0.001	298.5	0.1

Table C - 135. Run 3036 data, Mach 10 nozzle, $Re_\infty = 20.1\times10^6$/ft, α = 8°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	3.72E-03	3.82E-04	11.852	1.216	0.094	0.010	332.1	0.9
B02	4.47E-03	4.47E-04	14.220	1.424	0.113	0.011	340.4	0.9
B04	3.03E-03	3.24E-04	9.639	1.030	0.076	0.008	326.8	0.9
B13	2.37E-03	2.40E-04	7.534	0.762	0.060	0.006	325.2	0.5
C01	3.77E-03	3.78E-04	11.998	1.203	0.095	0.010	346.2	0.5
C02	3.82E-03	3.86E-04	12.169	1.230	0.096	0.010	343.5	0.6
C03	3.46E-03	3.57E-04	11.000	1.136	0.087	0.009	337.1	0.8
C04	3.05E-03	3.23E-04	9.697	1.028	0.077	0.008	328.0	0.8
C05	2.36E-03	2.56E-04	7.516	0.814	0.059	0.006	323.0	0.7
C06	2.00E-03	2.15E-04	6.349	0.685	0.050	0.005	321.9	0.5
C07	1.77E-03	1.82E-04	5.618	0.579	0.044	0.005	322.0	0.3
C08	1.87E-03	1.87E-04	5.947	0.595	0.047	0.005	324.8	0.3
C09	2.48E-03	2.48E-04	7.884	0.789	0.062	0.006	332.3	0.3
C10	2.87E-03	2.87E-04	9.121	0.912	0.072	0.007	335.8	0.4
C11	2.92E-03	2.92E-04	9.290	0.929	0.074	0.007	334.2	0.4
C12	2.70E-03	2.72E-04	8.589	0.867	0.068	0.007	328.9	0.6
C13	2.35E-03	2.38E-04	7.491	0.759	0.059	0.006	325.2	0.5
C14	2.14E-03	2.15E-04	6.825	0.685	0.054	0.005	323.2	0.4
C15	2.04E-03	2.05E-04	6.504	0.653	0.051	0.005	322.1	0.4
C16	2.08E-03	2.09E-04	6.619	0.665	0.052	0.005	322.5	0.4
C17	2.24E-03	2.24E-04	7.130	0.714	0.056	0.006	324.6	0.4
C18	2.40E-03	2.40E-04	7.629	0.765	0.060	0.006	326.9	0.4
C19	2.65E-03	2.66E-04	8.435	0.845	0.067	0.007	331.4	0.4
D02	3.63E-03	3.70E-04	11.558	1.179	0.091	0.009	332.6	0.9
D03	3.23E-03	3.33E-04	10.269	1.059	0.081	0.008	329.0	0.8
D04	2.80E-03	2.92E-04	8.909	0.928	0.071	0.007	325.9	0.7
D13	2.23E-03	2.26E-04	7.099	0.718	0.056	0.006	323.9	0.4
D14	2.13E-03	2.15E-04	6.782	0.684	0.054	0.005	322.9	0.4
F20	2.05E-04	2.12E-05	0.653	0.067	0.005	0.001	298.8	0.1
F21	1.60E-04	1.63E-05	0.511	0.052	0.004	0.000	298.4	0.0
F22	1.83E-04	1.86E-05	0.581	0.059	0.005	0.000	298.9	0.1

Table C - 136. Run 3036 data, Mach 10 nozzle, $Re_\infty = 20.1\times10^6$/ft, α = 12°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.15E-03	4.15E-04	13.074	1.308	0.104	0.010	341.1	0.7
B02	4.46E-03	4.46E-04	14.043	1.405	0.112	0.011	348.2	0.6
B04	4.03E-03	4.07E-04	12.691	1.280	0.101	0.010	336.9	0.9
B13	2.74E-03	2.76E-04	8.641	0.867	0.069	0.007	330.5	0.5
C01	3.95E-03	3.95E-04	12.438	1.244	0.099	0.010	352.0	0.5
C02	4.17E-03	4.17E-04	13.146	1.315	0.105	0.010	350.4	0.6
C03	4.08E-03	4.09E-04	12.863	1.287	0.102	0.010	345.3	0.7
C04	4.13E-03	4.20E-04	13.005	1.320	0.104	0.011	338.1	1.0
C05	3.67E-03	3.87E-04	11.572	1.214	0.092	0.010	332.6	1.0
C06	3.33E-03	3.61E-04	10.498	1.131	0.084	0.009	330.5	1.0
C07	2.92E-03	3.31E-04	9.204	1.034	0.073	0.008	328.8	1.0
C08	2.49E-03	2.70E-04	7.857	0.846	0.063	0.007	329.3	0.7
C09	2.61E-03	2.61E-04	8.209	0.821	0.065	0.007	336.0	0.3
C10	2.94E-03	2.94E-04	9.256	0.926	0.074	0.007	339.9	0.4
C11	2.94E-03	2.94E-04	9.270	0.927	0.074	0.007	338.6	0.4
C12	2.86E-03	2.86E-04	9.012	0.902	0.072	0.007	334.3	0.4
C13	2.76E-03	2.77E-04	8.693	0.872	0.069	0.007	330.6	0.5
C14	2.38E-03	2.39E-04	7.484	0.752	0.060	0.006	327.4	0.4
C15	2.27E-03	2.28E-04	7.136	0.716	0.057	0.006	326.2	0.4
C16	2.22E-03	2.23E-04	7.006	0.701	0.056	0.006	326.3	0.3
C17	2.35E-03	2.35E-04	7.397	0.740	0.059	0.006	328.4	0.3
C18	2.53E-03	2.53E-04	7.962	0.797	0.063	0.006	331.0	0.4
C19	2.79E-03	2.79E-04	8.780	0.878	0.070	0.007	336.0	0.4
D02	4.11E-03	4.12E-04	12.950	1.296	0.103	0.010	341.3	0.7
D03	3.92E-03	3.95E-04	12.350	1.242	0.098	0.010	337.9	0.8
D04	3.72E-03	3.79E-04	11.713	1.191	0.093	0.010	334.9	0.9
D13	2.52E-03	2.53E-04	7.937	0.795	0.063	0.006	328.7	0.4
D14	2.36E-03	2.36E-04	7.424	0.743	0.059	0.006	327.3	0.4
F20	1.57E-04	1.61E-05	0.494	0.051	0.004	0.000	299.0	0.1
F21	1.51E-04	1.51E-05	0.476	0.048	0.004	0.000	298.7	0.0
F22	2.03E-04	2.07E-05	0.639	0.065	0.005	0.001	299.2	0.1

Table C - 137. Run 3036 data, Mach 10 nozzle, $Re_\infty = 20.1\times10^6$/ft, α = 16°.

Gauge	St	ΔSt	St×(ReD)$^{(1/2)}$	ΔSt×(ReD)$^{(1/2)}$	St×(ReD)$^{(1/5)}$	ΔSt×(ReD)$^{(1/5)}$	Tw (K)	ΔTw (K)
A03	4.18E-03	4.19E-04	13.226	1.327	0.105	0.011	347.7	0.6
B02	4.42E-03	4.42E-04	13.973	1.400	0.111	0.011	354.0	0.5
B04	4.31E-03	4.31E-04	13.627	1.366	0.108	0.011	345.3	0.6
B13	2.82E-03	2.83E-04	8.925	0.892	0.071	0.007	335.1	0.3
C01	3.85E-03	3.85E-04	12.178	1.218	0.097	0.010	356.3	0.3
C02	4.08E-03	4.08E-04	12.888	1.290	0.102	0.010	355.3	0.3
C03	4.15E-03	4.15E-04	13.111	1.314	0.104	0.010	351.5	0.5
C04	4.60E-03	4.61E-04	14.550	1.460	0.116	0.012	347.6	0.7
C05	4.49E-03	4.49E-04	14.187	1.427	0.113	0.011	343.3	0.9
C06	4.39E-03	4.42E-04	13.884	1.406	0.110	0.011	341.7	1.0
C07	4.41E-03	4.51E-04	13.935	1.444	0.111	0.011	340.8	1.1
C08	3.81E-03	4.01E-04	12.039	1.291	0.096	0.010	338.7	1.1
C09	2.61E-03	2.61E-04	8.235	0.824	0.065	0.007	339.2	0.2
C10	3.02E-03	3.02E-04	9.548	0.955	0.076	0.008	343.9	0.3
C11	2.99E-03	2.99E-04	9.437	0.945	0.075	0.007	342.4	0.3
C12	2.69E-03	2.70E-04	8.500	0.850	0.068	0.007	337.6	0.2
C13	2.73E-03	2.76E-04	8.643	0.868	0.069	0.007	334.9	0.1
C14	2.63E-03	2.63E-04	8.305	0.832	0.066	0.007	332.0	0.4
C15	2.45E-03	2.45E-04	7.729	0.774	0.061	0.006	330.2	0.3
C16	2.26E-03	2.26E-04	7.139	0.715	0.057	0.006	329.5	0.2
C17	2.42E-03	2.42E-04	7.649	0.766	0.061	0.006	331.8	0.3
C18	2.65E-03	2.66E-04	8.388	0.842	0.067	0.007	334.8	0.4
C19	2.96E-03	2.96E-04	9.351	0.940	0.074	0.007	340.4	0.4
D02	4.23E-03	4.23E-04	13.356	1.340	0.106	0.011	348.2	0.6
D03	4.24E-03	4.24E-04	13.399	1.345	0.106	0.011	345.8	0.7
D04	4.19E-03	4.20E-04	13.256	1.330	0.105	0.011	343.6	0.7
D13	2.52E-03	2.53E-04	7.964	0.797	0.063	0.006	332.5	0.3
D14	2.42E-03	2.42E-04	7.634	0.764	0.061	0.006	330.9	0.3
F20	1.40E-04	1.40E-05	0.442	0.044	0.004	0.000	299.0	0.2
F21	1.51E-04	1.51E-05	0.477	0.048	0.004	0.000	298.9	0.1
F22	1.83E-04	2.11E-05	0.578	0.065	0.005	0.001	299.5	0.1

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*
01- 09 - 2017

2. REPORT TYPE
Technical Publication

3. DATES COVERED *(From - To)*

4. TITLE AND SUBTITLE
Experimental Investigation of Turbulent Aeroheating on the Mars Science Laboratory Entry Vehicle in AEDC Hypervelocity Tunnel 9

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)
Hollis, Brian R.; Collier, Arnold S.

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER
470883.04.07.01.03

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
NASA Langley Research Center
Hampton, VA 23681-2199

8. PERFORMING ORGANIZATION REPORT NUMBER
L-20542

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
National Aeronautics and Space Administration
Washington, DC 20546-0001

10. SPONSOR/MONITOR'S ACRONYM(S)
NASA

11. SPONSOR/MONITOR'S REPORT NUMBER(S)
NASA-TP-2017-219658

12. DISTRIBUTION/AVAILABILITY STATEMENT
Unclassified - Unlimited
Subject Category 34
Availability: NASA STI Program (757) 864-9658

13. SUPPLEMENTARY NOTES

14. ABSTRACT
An experimental investigation of the aeroheating environment of the Mars Science Laboratory entry vehicle was conducted in the Arnold Engineering Development Center Hypervelocity Wind Tunnel 9. Testing was performed on a 6-in. (0.1524 m) diameter model in the tunnel's Mach 8 and Mach 10 nozzles at free stream Reynolds numbers from 4.1×106/ft to 49×106/ft and from 1.2×106/ft to 19×106/ft, respectively, using pure nitrogen test gas. These conditions spanned the boundary-layer flow regimes from completely laminar to fully turbulent flow over the entire forebody. A computational fluid dynamics study was conducted in support of the wind tunnel testing. Laminar and turbulent solutions were generated for all wind tunnel test conditions and comparisons of predicted heating distributions were performed with the data. These comparisons showed agreement for most cases to within the estimated ±12% experimental uncertainty margin for fully-laminar or fully-turbulent conditions, while transitional heating data were bounded by laminar and turbulent predictions. These results helped to define uncertainty margins on the use of computational tools for vehicle design.

15. SUBJECT TERMS
Aerothermodynamics; CFD; Hypersonic; MSL; Turbulence; Wind tunnel

16. SECURITY CLASSIFICATION OF: a. REPORT	b. ABSTRACT	c. THIS PAGE	17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
U	U	U	UU	455	STI Help Desk (email: help@sti.nasa.gov)
					19b. TELEPHONE NUMBER *(Include area code)* (757) 864-9658